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# THE JOURNAL- LANCET

The Journal of the Minnesota State Medical Association  
and Official Organ of the  
North Dakota and South Dakota State Medical Associations

PUBLISHED TWICE A MONTH

A SEMIMONTHLY MEDICAL JOURNAL

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No. 1

## THE USE OF INDIRECT OR EXTERNAL FIXATION IN THE OPEN TREATMENT OF FRACTURES\*

By E. P. QUAIN, M. D., F. A. C. S.

BISMARCK, N. D.

The object of presenting a paper on the treatment of fractures before your Association is not to be considered an effort to add anything new to this already overworked field of surgery. It is merely an attempt to call attention to an old and tried method of treatment which, in my opinion, has failed to receive the consideration it deserves at the hands of those who would be best qualified to practice and teach it.

In this day of aseptic surgery it has come about that many of our best surgeons who treat fractures by open methods, have adopted the famous Lane plate as the treatment *sine qua non*. In the hands of the surgical specialist who has had considerable experience in bone-work, no one can deny that plating is the technic of choice in many simple fractures. The results from properly performed plating having been satisfactory; it has also come about that many surgeons with inefficient training and experience have undertaken this kind of work, and have plated nearly every variety of fracture. Complications due to unsuccessful plating of bones, have become so numerous in this country that at least one medical defense association is reported to have asked its clients to kindly let up on their bone-plating because its continuance would threaten bankruptcy for the company.

The failure of the plate is most frequently due to infection of the wound, resulting in more or less serious general sepsis and necessitating a

removal of the plate before it has fulfilled its intended mission. The cause of suppuration after bone-plating is not necessarily due to lack of aseptic detail at the time of the operation. Many a surgeon, whose asepsis has proven perfect in other operations, has been dismayed to find his bone-plating suppurate. There are undoubtedly other ways for bacteria to gain entrance into a wound than over the instruments and through the gloves. Bacterial invasion by the hematogenous route is hard to demonstrate; but we know that the lymphatics in bone are deficient, and bacteria from any source, therefore, have an exceptional freedom of growth at the site of a fracture. Perfect asepsis, careful handling of tissues, accurate adjustment of fragments, a plate of sufficient size, and screws which hold firmly, but not too tightly, will lead to good union in most cases. Under these conditions the presence of a steel plate in the tissues causes but little irritation. But if a plate be poorly applied to the fragments, either too loosely so that muscular contraction overcomes the tension of the screws, or so tightly that bone-absorption is unduly rapid, then the foreign body causes an irritation of the tissues. This leads to an exudate of serum, which spreads the wound open and invites infection from the skin and from the outside. But even though the wound has healed without any evidence of infection, it has been found that delayed and non-union occur more frequently after plating than after the old-fashioned splint or extension treatment.

\*Read at the 46th annual meeting of the Minnesota State Medical Association, St. Paul, October 1 and 2, 1914.



Several theories have been advanced to explain this fact. Among these may be mentioned the following: In the production of a fracture there is usually more or less stripping and tearing of periosteum. The greater the displacement the greater the loosening of periosteum. The osteoblasts escape from all broken and denuded bone-surfaces, and become mixed with the blood-clots which fill the spaces between the periosteal shreds. A free incision into this lacerated area is followed by an evacuation of the clots, and with the clots go the bone-cells which were intended to form the basis for a callus. The instrumentation necessary to readjust the fragments and to apply the plate help to rub away osteogenetic elements. We do not know how far this osteoblastic migration may extend; but it seems reasonable to believe that its limits are narrow, and that it takes place for a short time only, after which the particular portion of bone involved becomes exhausted of migratory bone-cells, and delay in callus-formation would be inevitable.

Another cause for delayed union may be the additional stripping of periosteum, and the rough treatment of the medullary cavity, in replacing the fragments and applying the plate, thus interfering with the two most important sources of blood-supply to the bone. The less expert the surgeon, the more likely are any of these incidents to occur. Perfect asepsis, therefore, is but one of many factors which must be brought into play before we can expect uniform success in bone-surgery.

Experience has taught that when a plate is applied in a compound fracture it tends to increase the inflammatory complications and requires removal, sooner or later.

The purpose of this paper is not to condemn bone-plating when sufficiently indicated and properly performed, but, rather, to dignify it, and to extol it to the highest plane in surgery, where it should be approached only by the cleanest of hands, conscience, and specialization. It is my purpose to advocate a substitute for the buried plate in certain cases of fracture by means of which the average surgeon may operate with considerably less danger to the patient and to himself.

In order "to determine the comparative merits of the different methods of operative fixation of fractured bone-fragments," Groves<sup>1</sup> conducted "An Experimental Study of the Operative Treatment of Fractures." His work ex-

tended over one hundred experiments on the long bones of cats and rabbits. In these studies he employed a great variety of substances and methods for bone-repair after making experimental fractures. One of the methods experimented with was that of indirect fixation of fractures. This was done as follows: Two holes were drilled through the shaft of the bone some distance above and below an artificially induced fracture. Through each hole was passed a well-fitting steel rod provided with a screw-thread and nut at each end. These rods were clamped firmly to two steel bars, one on each side of the leg. This made a rectangular steel frame, which held the broken bone firmly in the correct position.

Without detailing all the interesting results from the experiments of Groves, the following quotations are to the point in regard to indirect or external fixation of fractures by his method:

"The bone is firmly united, and only a linear trace of the fracture can be seen on naked-eye examination of the section. There is a small amount of external callus and a solid internal callus. [It] represents the most perfect union that I have ever attained in experimental operations."

"It is especially interesting as showing the complete absence of irritation at the two points where the bone is perforated, and in which steel bars have been resting for over ten weeks. There can be no doubt, as far as the evidence of these experiments goes, that this method of indirect fixation of the fracture gives a more perfect union of the bone than any direct method that I have performed."

He also used this method in experiments with comminuted fractures, and states that "the success of the indirect fixation of the fracture is nowhere seen to greater advantage than in the comminuted cases." "From a practical standpoint it is evident that the method of indirect fixation of the ends of the bone, leaving the site of fracture untouched, is a good one. It is a method which will be of great utility in dealing with both compound and comminuted fractures in surgical practice." "By the use of this [method] I have obtained better results than with any method of direct operative attack upon the area of fracture. That is to say, in every case, there was rapid union, perfect function, and absence of sepsis, and, further, the method is as readily applicable to comminuted and open, as to simple and closed fractures \* \* \*. The

method is much easier of application than any other. In fact, it only constitutes a minor surgical proceeding, which can be carried out in a few minutes with a very simple technic and a minimum risk of sepsis."

All we expect from experimental surgery on animals is to find some general principle which may be of practical use in human surgery. Conditions differ in and around the animal and the human; and the results of surgical experiments are of value in proportion to the extent to which they can be utilized in human surgery. In this particular instance the results of surgical experiments and surgical experience agree very well. External fixation of fractures has been practiced

plane desired. By properly adjusting and tightening the various parts of the apparatus after inserting the screws into the bone-fragments, an absolutely firm fixation is attained, which in many fractures makes the application of splints quite unnecessary. (Figs. 1 and 2.) The instrument is made (by Collin in Paris) in three different sizes to accommodate the various situations of fracture. By means of this fixator, Lambotte has treated a great variety of fractures, both simple and compound. He extends its application, either alone or in combination with other modes of fixation, to the following fractures: all compound and many comminuted fractures; simple transverse or slightly oblique fractures of the

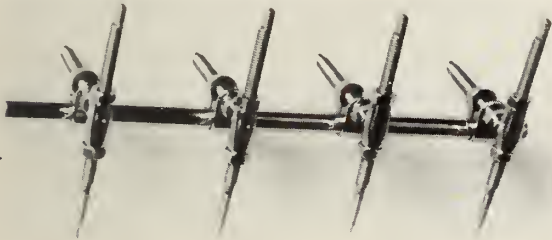


Fig. 1. Lambotte's "Fixateur."

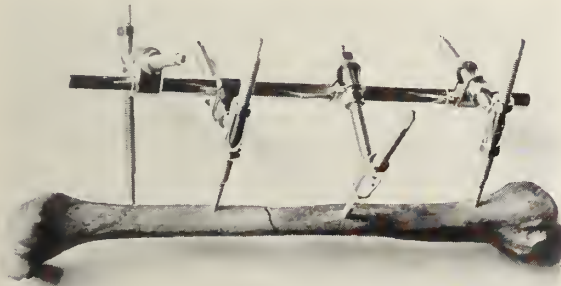


Fig. 2. Fragments of fractured humerus held in place by Lambotte's "Fixateur." As will be seen, the screws are inserted in different planes.

in various parts of the world for a long time; and those who have given the method the most extensive trial are its strongest advocates.

Lambotte<sup>2</sup> has been one of the early advocates of the open treatment of fractures. The "fixateur" described first by him twelve years ago, is one of the many appliances he has devised for bone-surgery. This instrument consists of a long steel tube with four or more short, movable, transverse rods to which the long screws may be fastened. Each screw is provided with a drill point, which obviates the necessity of drilling the hole with a separate instrument and putting in the screw afterwards. The short rods allow lateral deviations of each screw into any



Fig. 3. Freeman's "External Clamp."

diaphyses of long bones, especially if the bone is situated near the skin; all fractures of the tibia; also, any fracture in the hands of a surgeon who has not had special opportunities to develop bone-surgery with buried apparatus. In this connection it is interesting to know that Lambotte at the present time uses plates, staples, and other buried foreign bodies in certain fractures where formerly he applied the fixator. He does not do this now, because, as he says, he has acquired a more delicate technic and a higher degree of skill, which was not called for in the application of the fixator; yet Lambotte has been recognized for a long time as one of the foremost authorities on bone-surgery in Europe.

Two months ago I had the privilege of visiting his clinic at Antwerp, and can testify to the excellence of both his technic and his results.

Some years ago Dr. Leonard Freeman,<sup>3, 4</sup> called attention to a method of treating oblique fractures, especially of the tibia, by inserting long screws into each fragment, and clamping the projecting ends of the screws together some distance outside the skin. He also devised a clamp lined with soft wood for the purpose of holding the screws firmly and without damage to the thread. (Fig. 3.) The method appealed to me very strongly, chiefly because of its simplicity of technic. A familiarity with his articles on the subject will repay anyone who is interested in the treatment of fractures.

We have now made use of this external or indirect fixation in a variety of fractures, both simple and compound, and are convinced that the claims set forth by Dr. Freeman are in no wise exaggerated. We have employed it in fractures of the humerus, radius, ulna, femur, tibia, and inferior maxilla. In the case of a wide, compound, and infected separation of the symphysis pubis associated with extensive lacerations of the perineum, rectum, and bladder, it gave eminently satisfactory results. The chief objection to the Freeman apparatus is the difficulty of placing the screws in the same plane, especially when more than two screws are needed. Lambotte's fixator is slightly heavier and a little more cumbersome of application, but has the distinct advantage of the intermediate rod and joint which permits the insertion of as many screws in as many planes as may be desired.

From the experiences of the two authorities quoted (Freeman and Lambotte), together with my own limited observation, the following general rules for technic should be adopted:

In simple fractures, after reduction has been accomplished by external means, a small incision is made in the skin one to two inches to each side of the fracture while an assistant maintains the reduction. Conditions are ideal when periosteal lacerations and extravasation have been so slight as to permit the placing of the screws beyond all damaged tissues. By blunt dissection through the soft parts the bone is reached, and a screw inserted into each fragment. If the Freeman apparatus is used, the metal cylinder protects the drill, and, later, the screw from contact with the skin and underlying soft parts. With Lambotte's fixator it is advisable to retract the

skin edges with a forceps, passing the screws between the blades of the forceps. A curved incision makes this retraction more effective. Near the middle of a shaft where the bone is hard, it is usually not necessary to perforate the bone entirely. A well-fitting screw extending only through the cortex will suffice. In the softer bone near the epiphysis, or where absorption has taken place, the whole bone must be perforated. In the clavicle, inferior maxilla, radius, and ulna, or in any place where the reduction is easily maintained, these two screws are usually sufficient, and the external clamp or fixator may be applied. The assistant then may release his hold. A few drops of tincture of iodine is applied about each screw, likewise a dressing, after which a well-fitting plaster splint is bandaged to the opposite side of the limb.

In the humerus or femur, or in any case where muscle tension is great, or reduction hard to maintain, it is necessary to insert two more screws, well toward the ends of the bone. Under such conditions it is necessary to have an apparatus made on the Lambotte principle, since it is impractical to try to place all screws in the same plane.

Unfortunately, many fractures cannot be successfully reduced without incision over the fracture, and direct instrumental replacement of the fragments. After this has been accomplished, and the reduction is maintained with long bone-holding forceps, a screw is drilled into each fragment in the wound already made, each screw being placed one or two inches from the fracture. It is sometimes convenient to insert the screws through a separate small incision through the periosteum and the soft parts immediately over it, in order to close up entirely the periosteal wound at the place of fracture and reduction. A separate skin incision for each screw is practicable at times, and insures complete isolation of the screws from the main wound. The screws may be inserted before reduction, in suitable cases, and used as levers to replace the fragments. This saves injury to the bone from the instrumentation of reduction, and is a very desirable procedure when possible. If two additional screws are needed near the ends of the bone, they are always placed in separate small incisions. Lambotte uses four screws in nearly all cases of shaft fractures, and does not use any splint whatsoever. My experience has indicated that one screw in each fragment is



enough at least in the forearm and leg, provided a firm posterior plaster splint is applied.

The skin wound is carefully closed except near the exits of the screws. Too tight closure about the screws invites skin-infection. If the bone lies deeply it is wise to surround the screws with a split rubber tube for a short distance under the skin, according to Lambotte. In order to avoid changing dressings for the first three or four days, a large gauze pad should be applied to absorb the blood, which will escape along the screws. In a long and deep wound the oozing may require earlier dressing, which must then be made under as strict asepsis as the original operation.

Useful as this method is in many simple fractures, when open treatment seems necessary or advisable, its greatest service is found in compound fractures. Every one who has treated open and badly infected fractures under the old principle of paying no attention to the fracture until the suppuration has ceased will agree that this treatment has some serious drawbacks. The greatest difficulty is to be able to dress the wound properly from day to day without disturbing the fragments and causing the patient excessive pain. By the use of these long screws and external clamps the bone-fragments are held immobile, allowing the dressings to be changed without much discomfort. In a compound fracture when the skin laceration is slight, when the history of the injury leads the surgeon to hope for aseptic healing, and when reduction can be made without further incision, the screws should be placed in healthy tissue some distance from all lacerations. The same technic should be followed when all indications point to an already infected fracture which is situated sufficiently far from the end of the bone. But if the infected fracture is near a joint, or if the laceration of soft parts down to the bone is extensive, or an enlargement of the wound is needed to reduce the fragments, then the screws may be placed entirely within this wound. In these events the screws will serve the double purpose of holding the fragments securely in place and of affording good drainage.

The length of time the screws should be left in the bone may vary from two to five weeks. Lambotte leaves the fixator in situ until bony union is established. But in many of the simpler cases where early infiltration and callus-formation hold the fragments well in place it seems unnecessary to leave the screws over fif-

teen to twenty days, provided a suitable plaster cast is affixed before their removal. Bone-absorption is more rapid in some cases than in others, and the screws may loosen at the end of the second week. This is most likely to happen if the reduction has been incomplete and undue tension, therefore, exerted on the screws.

The danger that these long screws will spread infection within the bone is very small when proper aseptic technic has been followed out. A slight infection may come in the superficial tissues near the skin, but this occurs late, as a rule, after there has been an infiltration around the screw, which virtually isolates it from the surrounding tissues and confines the infection to the immediate vicinity of the screw. Lambotte states that he has never been obliged to remove the instrument prematurely because of infection.

In conclusion, I should like to emphasize the following advantages of indirect or external fixation of fractures, especially over the technic of plating:

1. Comparative ease and rapidity of application, permitting a surgeon of good operative judgment and technic, but lacking extensive experience in bone-surgery, to operate with reasonable safety and success and with a minimum destruction of bone elements.
2. The fixation is firm, and permits early movements of neighboring joints.
3. There is no metal in contact with the fracture line.
4. The screws are entirely removable, leaving no foreign body behind.
5. In compound fractures it holds the fragments in place, aids drainage, and makes dressing convenient and painless.

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#### DISCUSSION

DR. JOHN T. ROGERS (St. Paul): I think this Association is to be congratulated on having heard a paper like this. Since reading his paper and talking with Dr. Quain, I am almost converted myself to the use of this instrument. I shall never be converted to the use of bone-plates. In an experience of nearly twenty-three years I have never used the bone-plate. For the last ten years I have used absolutely no foreign body in the treatment of fractures. I mean that I have used no silver wire or such material, which always, in the past,

had to be removed. A great many of Lane's bone-plates, introduced even by the best surgeons, are now being removed. It has been my experience, once or twice, to have patients come in with a bone-plate perfectly encysted around the seat of fracture and yet giving the patients trouble.

The primary thing in the treatment of all fractures is the functional result. I am not ashamed of the functional results which were gotten before the use of the x-ray. It is true, some of the anatomical results were not beautiful. Since we have had the x-ray, both the anatomical and the functional results have improved very markedly; and at the present time, with the various splints that we have, for instance, with the Bardenheuer splints, in the various methods of splinting these cases, both compound and simple fractures, we get, I think, as good functional results as we would from such an apparatus as the bone-plate, except in rare instances. But with such an apparatus as the Lambotte machine, as presented by Dr. Quain, I am almost persuaded to use that instrument in the future, in some exceptional cases.

I do not believe in the operative treatment of simple fractures, as very generally advocated and practiced. Our results are better in the long run; that is, the results from the majority of men operating are better with the splint and old-fashioned treatment. Perhaps I am old-fashioned, or perhaps I am not progressive enough; but it is going to take a long time to convince me that it is necessary to introduce a foreign body into a fracture that can be controlled by the old-fashioned methods.

DR. JOHN H. RISHMILLER (Minneapolis): It is a pleasure to have listened to Dr. Quain's conservative paper, and also to Dr. Rogers' conservative discussion.

I think that we are treating fractures too much in a wholesale fashion, and too little in a retail manner. We are often not very certain of our differential diagnosis of fractures immediately following a trauma. We are not paying enough attention to the early differentiation of injuries about joints and of different bone lesions. We are apt to take things for granted, and go along as luck will carry us; and finally get into trouble.

All my bone and joint cases are radiographed before any consideration is given to the treatment; and I have been so impressed with its diagnostic aid that I would be at a loss to figure out the proper treatment of each individual fracture in any other way. The diagnosis is made without anesthesia or painful manipulation. If the radiographic interpretation reveals displacement, it is best to place the patient under chloroform or ether, and reduce, or try to reduce, the fracture. It is always well to confirm our reduction by taking a radiograph a few days later.

We get satisfactory reduction when the range of motion is not impaired, and no deformity is noticeable. If our reduction is not satisfactory then, as a rule, we are compelled to resort to the open method. After one has cut down on the fracture, and removed interposing periosteum or muscle, it is then again a question whether to suture the periosteum and fascia over the fracture, if the fracture can be thus retained, or whether to put on a Freeman's external clamp or a Lane's internal steel plate.

Dr. Quain advocates one of the greatest aids in traumatic surgery, particularly in that class of fractures where there is an open and comminuted fracture with

infection, where we cannot prevent shortening if we do not resort to some such device as that advocated by the essayist; and I desire to draw attention to an open and comminuted fracture of the tibia and fibula, followed by infection, where the application of Freeman's external clamp to the tibia will unquestionably prevent irreparable shortening during the time when we are making a strenuous effort to get rid of suppuration. In treating fractures in this manner our operative cases fall to about five per cent; in other words, every twentieth case demands operative interference. We must be more particular in elderly subjects than in the young as nature aids markedly in straightening out malunited fractures in the younger generation.

In a supracondyloid fracture of the femur where the gastrocnemius pulls the lower fragment backward, and in a supramalleolar fracture where the gastrocnemius pulls the lower fragment forward, where we cannot get a satisfactory reduction it is often accomplished by severing subcutaneously the tendo Achillis, and this would consequently leave no foreign material imbedded, nor make a closed fracture an open one.

It has been my experience that in cases that have sustained a great deal of trauma, in which there have been likewise fractures of legs or arms, the soft tissues always heal first and the osseous tissues last. Furthermore, if a patient has sustained a number of fractures of different bones, we will very often have union of one fractured bone, and then cannot understand why the others should not have united simultaneously. It is simply because the system is not prepared to provide and deposit so much calcium chloride for callus-formation in different parts of the body at the same time.

DR. R. E. FARR (Minneapolis): I am sure the Association is to be congratulated on hearing Dr. Quain's very interesting paper calling attention to this method.

There are several methods that have been used along this line. I have had no experience with the method of Lambotte, but I have used a method in a modified manner recommended by Parkhill, and he was the man who introduced the method used by Leonard Freeman. The Parkhill clamp has this disadvantage compared with the clamp of Lambotte, that the spikes, or whatever are used, must be parallel to each other, or nearly so, in order to use it. I have this clamp, and find it excellent in fractures of the tibia where the bone is superficial, and we can put the pins in parallel to each other as my fingers are [indicating], and then put the clamps on the side. Extension methods are used. I have used Anschütz method of extension with a screw or drill in the os calcis in fractures of the tibia low down; and it gives excellent satisfaction both in compound and simple fractures.

Dr. Lillenthal, of New York City, has modified the Parkhill or Lambotte method by introducing three or four or five screws or drills and winding with sterile plaster of Paris their points as they project. It gives exactly the same fixation that Lambotte secures, and possibly is an excellent method. He reports it as being very satisfactory.

Assuming that Dr. Quain's paper has to do with the holding of the bones in position once they are placed in proper position, I desire to call attention to this clamp [indicating]. Several clamps have been invented for the purpose of reducing these bony fragments, and holding them reduced while some method of fixation is used.



This is a clamp that I have just designed [showing clamp]. It is crude as yet. I am using it simply to work out a principle. It has certain objections that at once appear. For instance, the apparatus here is too close to the bone upon which we are working, but that can be easily overcome. We make use of the turnbuckle of Gerster, of New York. He uses these in two or three sizes. He uses a small one until he stretches the tissues to a certain degree, takes that out, and puts in another, and after the shortening is overcome he reverses the force, and lets the bone ends come together.

With this ratchet [indicating] the bones may be pulled apart, making use of the same principle that Gerster brought out. By turning the end of this little knob, the motion may be reversed. With this other ratchet-clamp we can secure motion forward and backward; and by elevating or lowering the handles we secure upward and downward motion, thus obtaining all motions through a pair of ratchets and by moving the handles of the clamps. One of the various methods of fixation may then be applied.

Dr. A. A. LAW (Minneapolis): I think all of us remember the storm of protest from the profession which arose when Mr. Lane advised and reported his method of plating bones. We also remember how, after a while, the pendulum swung too far the other way.

We were interested in hearing, at a meeting of the Western Surgical Association a few months after Sir Arbuthnot's report, one surgeon report fifty cases of Lane plating in less than six months. Obviously, he must have plated nearly every fracture that came under his care. Fewer men are resorting to Lane plating now, for the simple reason that we have learned to exhibit them in but a few selected cases; also because we have to take out a great many plates that other men have put in, and, unquestionably, other men are taking out some of the plates that we put in. When Dr. Leonard Freeman read a paper on the method described by Dr. Quain an animated discussion followed it. This method is, unquestionably, of a great deal of utility in selected cases. Sir Arbuthnot Lane has not advocated using his plate in compound fractures. Those of you who were at the American Medical Surgical Section last year in Minneapolis, heard a report from the Panama Canal Zone, and noticed that they were using Lane plates in compound fractures with a large percentage of union and aseptic wounds. The same results were reported in the clinics at Bethlehem, Pennsylvania, where they have very many traumatic cases. In the University of Minnesota clinic we have had a number of cases of compound fracture in which Lane plates were used with a large enough percentage of good results to warrant their use in selected cases.

I was interested to hear that Dr. Rogers has never resorted to the use of any foreign material in the treatment of his fracture cases, and yet reports good functional results. This bespeaks for Dr. Rogers a high degree of skill, and he is greatly to be congratulated. It has been impossible for me in my personal practice to keep, without the use of some foreign agent, a long oblique fracture of the femur in position without some shortening and deformity. It has occasionally been impossible for me to reduce an over-riding fracture of a long bone where there is interposed fascia or muscle which prevents osteogenetic contact of the fragments; and I have had to resort to an open operation, the use of the Lane plate, wire, or transplantation of bone. I

have as well been unable to reduce a supracondylar fracture of the femur where the lower fragment locks underneath the upper, without the use of the open operation and some foreign device. It is not possible for me to reduce and keep in position supracondylar fractures, T-fractures, or epicondylar fractures of the humerus without some device. I have been obliged to resort to the method proposed by Murphy in these cases, that of extra articular nailing.

I did not hear all of Dr. Quain's paper, much to my regret, and I do not know whether he made mention of that method or not. In our clinic we have resorted in a number of cases to the open operation when we could not properly reduce these fractures near or involving a joint. You cannot reduce one of these fractures by the use of the Lambotte apparatus for the reason that the lower fragment of the bone is so short, and also because the bone is very porous. The osteoporosis is such that it allows the screw to loosen before it has accomplished its purpose, therefore we open these cases, nail them, and put them up in the proper position,—in acute flexion, if an elbow, or inclined plane, or suspended moulded posterior cast, if the fracture is of the lower end of the femur.

All these methods have their place, and in isolated cases they all have merit; but I believe we are approaching a middle ground between the two extremes, where the open method of treating fractures will be resorted to only when the more conservative methods do not avail.

Dr. JAMES E. MOORE (Minneapolis): I feel myself fortunate to be able to have heard this paper, because it has a tendency to teach conservatism, and, since the introduction of the Lane plate, the tendency has been to go the other way.

I have been very much interested in watching the bone-work of some of the men in our University. About two months ago we had a fracture of the patella in an elderly woman. She was brought into the hospital, and the question arose at once, Shall we operate upon this case? There was only a little separation of the fragments, and the fragments could be brought together. I quizzed our younger men with a great deal of interest, and found they were disposed to operate upon that fracture of the patella. Assuming the dignity of my seniority and so on, I opposed the operation. We treated the fracture of the patella according to the old methods, and got a perfect result.

Last week a man came in with a fracture of both thighs at the junction of the middle with the lower third. I was immediately interested in the attitude the young men were going to take toward the treatment of these fractures. I was pleased to note the conservatism displayed. They all admitted that, if they made an attempt to reduce these fractures and could not get them reduced, or could not retain them, they would apply a Lane plate; but, I said, "Would you advise Lane plating right off?" "No." Not one of them advocated plating fractures, so the case was treated conservatively without the application of any foreign body.

I have watched with a good deal of interest the method of treatment of fractures. I remember very well when Parkhill first introduced the clamp, and Dr. Freeman, who is a colleague of his, followed it up, and then Dr. Lilienthal modified it slightly. While I have not used it extensively it certainly has a place in surgery, and, it seems to me, that place is in compound

fractures. While it is true that the first objection of Mr. Lane was that his plate should never be used in compound fractures, this no longer obtains. We do not believe that because it has been demonstrated that the Lane plate can be applied in a compound fracture, and, although it would be necessary to take it off after a while, we will find it has performed its function in the meantime, and we have got union of the fracture. Still you have to take it out. By the method suggested by Dr. Quain you can retain the fragments without introducing a foreign body into the wound. You get a certain mechanical retention, the same as you would by applying a Lane plate directly, and there are no after-operations for the removal of the foreign body. It is a tendency toward conservatism, which should be the watchword of every young, as well as of every old man. (Applause.)

DR. QUAIN (closing): I wish to thank you for the very liberal and gracious discussion of my paper. If you will read what Freeman has written on this subject, and also what Groves has published about his experiments, I feel confident that you will become convinced as to the practicability of this method of treatment.

I did not state in the paper that it was applicable to all forms of fracture. It is not. Neither did I discuss the indications for open treatment of fractures. I merely referred to the use of this mode of fixation in

certain simple fractures where open treatment seems "necessary or advisable." In the treatment of compound fractures in general I consider it the method of choice.

Before using the method on the human, it is a good practice to obtain a few shafts of fresh bones from the butcher-shop, and experiment with the screws. The fracture should be made first, and the fragments held by an assistant with forceps. The screws are then drilled into the bone in various planes until one has familiarized himself with the force and traction necessary to obtain proper alignment.

In the human, one should begin using it on the tibia or other bone situated near the skin.

Dr. Farr mentioned the modification made by Dr. Lilienthal. I had the satisfaction of seeing Dr. Lilienthal employ this method at one time. Dr. Lilienthal is one of the foremost surgeons in New York, and his technic is excellent, but I did not take a fancy to the numerous chunks of plaster of Paris which were scattered throughout the wound during the operation, and required considerable time to scrape out reasonably clean. Had it been my own leg I should have preferred a Freeman or a Lambotte apparatus.

Dr. Law mentioned the necessity of using nails for certain fractures. That is quite true, and is another evidence that we must know many methods and must be able to apply the most suitable one in each case in accordance with the indications.

## SPINA BIFIDA WITH MYELOMENINGOCELE: REMOVAL OF MYELOMENINGOCELE AND CLOSURE OF SPINAL CLEFT BY TRANSPLANTATION OF ANIMAL BONE\*

By H. M. ERENFELD, M. D.

Formerly Assistant Surgeon at the General Hospital, Vienna

ANAMOOSE, N. D.

It gives me pleasure to appear before this Association with a report of a case of spina bifida with myelomeningocele, removal of the latter, and closure of the spinal cleft by transplantation of animal bone. On account of the limited literature treating these cases we are not going into a long discussion of such cases as a means of introduction. But before describing the case, I think it would be of some value to refresh our memories about spina bifida, and review shortly its etiology and pathology.

Spina bifida is a deformity, or, better, a malformation of the spinal column, and it is congenital. To understand clearly this occurrence it is well to review, shortly, the development of the spine in embryological life. In the earliest stage of embryological life, in the gastrula stage, we have two layers of cells surrounding a central cavity: the outer layer, the ectoderm or

epiblast; the inner layer, the entoderm or hypoblast; and a little later a third layer, the mesoderm, appears. By looping up the two longitudinal folds forming from the epiblast, and approximation of their ridges, the spinal column and cord are produced. On both sides of this canal the mesoderm forms a thick column, which later undergoes segmentation and chondrification, laying the basis for the development of the vertebral bodies.

A mal-union or disturbance in the development of these embryological elements will cause a cleft, through which the different contents of the spinal column may protrude.

This pathological condition is defined as *spina bifida*. Spina bifida, therefore, presents itself in different forms or grades, depending partly upon the extent and degree of the embryological malformation and the contents.

In these aspects spina bifida may be compared with a hernia. It occurs about once in a thou-

\*Read at the 27th annual meeting of the North Dakota State Medical Association at Grand Forks, May 13 and 14, 1911.



sand births. We can distinguish five different forms: (1) myelocoele; (2) meningocele; (3) syringomyelocoele; (4) myelomeningocele; and (5) spina bifida occulta.

Myelocoele is a complete protusion of the spinal cord, usually accompanied by a protrusion of the viscera with constant leakage of the cerebrospinal fluid; death occurs in a few days.

Meningocele is a protruding sac composed of meningeal membranes and cerebrospinal fluid only.

Syringomyelocoele is composed of meninges, cerebrospinal fluid, and spinal cord, with an enormous dilation of the central canal.

Myelomeningocele is composed of the meningeal membranes, cerebrospinal fluid, and the spinal cord, including the cauda. As this is the particular type our case presents, we shall describe it somewhat more explicitly than the other forms.

The tumor is varying in size, from that of a hazelnut to that of an orange; and it is usually situated in the median dorsal line. At its summit, where the cord is attached to the wall of the sac, there may be a dimple or furrow. The sac wall is composed of epidermis, dura mater, and arachnoid membranes.

The sac cavity is the continuation of the sub-arachnoid space, and is filled with cerebrospinal fluid. The skin over this tumor is seldom normal; but normal skin extends from the base to a variable distance. The rest of the tumor is covered with membranous tissue, which frequently becomes ulcerated or gangrenous.

Spina bifida occulta, which is a rare form, is a cleft in the spinal column without any visible protuberance of the contents of the spinal canal, very frequently accompanied by a local hypertrichosis, which is then symptomatic of this condition.

As to the location of spina bifida: It may occur at any part of the spine,—posterior, anterior, or lateral. The posterior, in the lumbar or sacral region, is the most frequent.

*Diagnosis.*—The diagnosis is, as a rule, not difficult if the tumor is posterior, except in spina bifida occulta. Most of the patients are affected with different symptoms. We may find anesthesia, club-feet, trophic ulcers, motor and sensory disturbances, and sphincteric derangements.

More difficulty is encountered in the diagnosis of spina bifida anterior, which can hardly be made before abdominal section.

*Treatment.*—This consists either in puncture,

injection, or excision of the sac. The first is only palliative without any therapeutic value whatever.

The injection, consisting of iodine solutions, is mostly ineffective, and frequently gives rise to severe complications and disturbances of the entire central nervous system. The non-operative treatment, as a rule, is very unsatisfactory, the sac, as a general rule, sooner or later becoming ulcerated or gangrenous with the danger of secondary infection of the central nervous system.

*Operative treatment.*—At the present time the open operative treatment seems to give the only favorable results, provided that no hydrocephalus, marked paralysis, loss of sphincteric control, or marked deformities elsewhere are present. Even by operation it is sometimes impossible to improve cases presenting moderate paralytic symptoms, if they are due to compression of the cord. Of course, if they depend upon a fetal defect of the cord, no improvement is to be expected.

*Prognosis.*—The prognosis in most cases is unfavorable. Of 649 cases of spina bifida that died in England in 1882, 612 died in the first year. Among 90 cases not operated on, the majority died in the first months; only 20 lived over five years.

The prognosis is most favorable in meningocele; less in the other varieties, the myelocoele being always fatal. The statistics show that when the children have been operated upon within the first few months, the mortality has been over thirty-five per cent.

*History of the case presented.*—The patient, eight months old, male, came first under my observation when about two months old, when I was called to attend to the case. There was a normal delivery. Mother believes firmly that the tumor was caused by an accident *she* had. She fell from a buggy in the first days of pregnancy, and suffered a severe contusion of her back on the identical place the tumor presented itself on the baby. The swelling dated from birth, and was about the size of a walnut. The child had intact motor-function in both legs; sensation was present; no hydrocephalus; no sphincteric disturbances. An operation was advised for a later date, and the parents were instructed to protect the tumor as much as possible against injuries and infection, and to call again if any changes or ulcerations should take place.

At the age of eight months I saw the patient again. At that time the general conditions were

the same; but the tumor had increased to the size of an orange. The base was wide and covered with normal skin; the summit was covered with only a thin membrane.

The continuous increase in size of this membrane and thinning of its wall induced the parents to again seek medical aid, and an immediate operation was advised.

*Operation.*—General anesthesia under ether-oxygen. The strictest aseptic precautions were taken, and the baby placed with the head down and the body raised to prevent excessive loss of cerebrospinal fluid and blood, which always has to be expected in this operation.

The skin was cleaned with ether and alcohol; the sac was now punctured by slantingly introducing a small trocar, and about two ounces of cerebrospinal fluid slowly withdrawn.

An incision was now made through all layers of the sac, allowing the spinal fluid to escape

and fastened with two small nails about one-eighth of an inch in length. The small bony disk with periosteum was obtained under aseptic precautions (from a young rabbit) a few hours previously, and was kept on ice in normal salt solution. The loosened periosteum was now approximated as much as possible by a few No. 00 chromicized catgut stitches, fascial muscular flaps formed longitudinally on both sides, and the disk covered with them, using very fine Pagenstecher celluloid thread.

After excision of an oval flap from the sac, removing at the same time the membranous portion of it, the outer layers were approximated with a continuous No. 1 catgut with collodium gauze dressing.

The baby stood the anesthetic well, and left the operating-room in good condition. The first temperature reading, taken five hours afterwards, showed a temperature of  $104^{\circ}$ , which went up to



Fig. 1. Before operation.



Fig. 2. Six months after operation.

gradually. A slight increase in pulse-rate and number of respirations was observed. After the complete opening of the sac in the longitudinal line the contents were examined, the cord presenting itself fastened by a veritable network of nerve filaments to the inner surface of the sac, protruding from an opening in the vertebral canal a little less than a quarter of an inch in diameter.

No attempt was made to separate the firmly adhering dura from the skin. Cutting loose most of the nerve-filaments an attempt was made to replace the cauda, the presenting part of the cord, in the spinal canal. It was found impossible, even by suspending the baby by the feet and using considerable pressure, to replace the whole cord, and we were compelled to amputate about a quarter of an inch of the spinal cord.

The periosteum around the bony defect was now carefully loosened, and a small disk of bone with its periosteum was laid over the opening

$105.6^{\circ}$  during the first night and remained between  $103^{\circ}$  and  $105.6^{\circ}$  for the first forty-eight hours. Restlessness and considerable twitching of arms and hands were observed during the first night. The temperature went down afterwards; but remained between  $101^{\circ}$  and  $102^{\circ}$  constantly during the first week.

There were no symptoms of any paralysis or other complications aside from a considerable increase of the daily amount of urine and a few superficial trophic ulcers on the scrotum during the first five weeks. The child is, at the present time, eight months after the operation, entirely free from any complications, is able to walk alone, and nothing out of the normal can be observed.

In concluding this paper it may be worth while to make a few remarks about transplantation of tissues. The simpler the transplanted tissues are, the less nutrition is required for their survival after transplantation, and the simpler connective tissues, such as tendon, bone, fascia, and fat, will

survive for days on the transudate surrounding the same.

According to Phemister, it is of great importance whether the transplant is autoplasmic, homoplastic, or heteroplastic.

1. Autoplastics are those which are derived from the same animal upon which they are again used.

2. Homoplastics are transplants from another individual of the same species.

3. Heteroplastics are transplants from a different species of animal, or of dead tissues from the dead.

The question which interests us most is, What becomes of the transplant? what is its final fate? This depends on a large number of circumstances.

The technic of the transplantation is of the greatest importance. Perfect asepsis is essential, also good hemostasis, as hematoma interferes with the early nutrition of the transplants. Careful handling of the transplant to avoid necrosis is highly desirable.

The final fate of a transplant is variable. As a rule, even in cases where the transplantation has been a success clinically, the transplant does not necessarily live. In most cases the cells of the transplants do not live: they are slowly absorbed and replaced by connective tissue. The process which takes place in bone-transplantation is, according to Axhausen, as follows: The periosteum and endosteum of the transplant remain alive, while the bone-cells themselves undergo necrosis and absorption. The former proliferate, and for the necrotic bone-cells are substituted new bone formed from the osteogenic cells of the transplant's periosteum. It is, therefore, absolutely essential to have periosteum on these transplants. As mentioned above, it is possible that the transplanted parts serve only as a kind of scaffold to give the surrounding tissues time to form connective tissue, which, in time, entirely takes the place of the transplant.

Lack of time forbids me to go further into this subject. I want, however, to mention that in our particular case any of the above-mentioned fates of the transplanted bone may have taken place, even when the transplantation has been highly successful from a clinical standpoint.

#### DISCUSSION

DR. A. J. PAULSON (Flaxton): A case that came under my observation a number of years ago was a boy 18 years old, born with a tumor on the back about the size of a walnut or somewhat larger. It gradually increased until, about the time he was 18 years old, it was as large as an infant's head. The reason it had not

been attended to before was because the parents had seen a number of physicians, and had been advised to leave it alone, as it would be fatal to attempt to do anything for it.

The boy got along fairly well until about two months before the time I first saw him. He was able to do ordinary labor on the farm. At that time the tumor began to slough, and there was a leakage of spinal fluid and considerable tenderness so that during the two months the boy had been lying in bed most of the time on his stomach, and had some dressing of various kinds to absorb the fluid that was constantly leaking. The leakage of fluid led the parents and the boy himself to think that losing a little of it was not as bad as had been impressed on their minds previously.

When I saw the boy I stated to them that something might be attempted; for, if the boy was to remain the rest of his life lying with his face down on the bed, he was not much better off than if he was dead, although I thought that the chances of his undergoing an operation might not be altogether hopeless. Remember, it was very strongly impressed upon his mind that any surgical interference would be fatal. The parents and the boy finally consented to an operation, and preparations were made for it.

The first step in this operation was the removal of fluid. In the course of two hours 43 ounces of fluid were removed from this sac. During the time of the removal of the fluid the boy was lying on the operating-table with his head probably ten or twelve inches lower than his feet. During the two hours this fluid was slowly removed, the boy showed symptoms of collapse; but the entire amount of fluid in the sac was finally removed, and the patient got along without any further trouble. Two days after that a considerable amount of fluid had again accumulated; and it was then decided to remove the sac, and see what further might be done. The sac was removed. In this instance the suture material was heavy silk. The sac was stripped from the skin, and surrounding tissues, and, before closing the wound, the inside of the stump was irritated by rubbing the surface with a sponge. That was done to facilitate union; and the heavy silk ligature was placed around the base of the sac.

The bone separation proved to be about three-quarters of an inch long, possibly a little better than a half an inch wide. Nothing was done to that, but the soft parts were closed with catgut; and a primary union was obtained with the exception of a small slough right in the center of the skin wound.

There was no attempt to transplant bone in this case. The boy made an uneventful recovery, and has since been able to go about his work better than he did before the operation. He is section man on a railroad. He has worked since recovering from the operation, and has had absolutely no trouble with the wound or with the condition since with the exception that where it sloughed the skin is a little more tender, and he has to avoid irritation from underclothing.

DR. J. D. TAYLOR (Grand Forks): There was a point brought up in the discussion as regards the removal of the fluid before the sac was opened. In these cases no attempt was made to diminish the pressure from within until the sac itself was opened at the time of incision. The sudden escape of fluid seemed not to make very much difference to the patient,—in no case, anything ap-



proaching the nature of a collapse, so I don't think it is necessary to withdraw the fluid before the sac is opened.

In regard to the danger of infection: That was one thing that I was afraid of prior to the operation, but as I watched the case I found that the escape of fluid, particularly in the last case, was from within outward. You can readily see how any possible chance of infection was being drained away instead of being drawn within; and, as a result, I think there is very little danger of infection in these cases. In the event of a leakage the effect is not serious. In the last case the leak did not extend over two days, and it seemed not to make any impression upon the little fellow. He seemed to be just well and happy. We had hard work to keep him in bed. He wanted to play, and had nothing to complain of.

DR. ERENFELD (closing): It will be seen that the cases discussed by Drs. Paulson and Taylor represented spina bifida of a different type, namely, plain myelomeningoceles. Containing nothing but the spinal fluid itself, whereas the case that I report differs greatly in its anatomy, containing the spinal cord, nerve spirills, and the fluid. The difficulty in reducing the cord and to keep it replaced in the spinal canal, will readily explain the difference in the technic employed by Drs. Paulson and Taylor and that of myself. The accompanying photograph shows that the tumor was well sized, still the amount of fluid withdrawn and lost during the operation was hardly four ounces and the post operative treatment showed little or no leakage at all. Consequently the loss of forty-three ounces as Dr. Paulson reports seem to me slightly overestimated.

## SHOULD WE MOURN THE LOSS OF EUROPEAN CLINICS?\*

BY W. H. CONDIT, M. D.

MINNEAPOLIS

Since the outbreak of hostilities among our European neighbors, severing, temporarily, all educational, as well as commercial, intercourse with the nations of the world, considerable discussion has arisen relative to the medicoclinical advantages and possibilities in our own country. Those most keenly interested in this subject are the members of our profession who were disappointed in their plans for postgraduate study abroad this winter. The writer was one of that number, having planned for a few months' study of obstetrics and gynecology in the European hospitals. Scores have returned from abroad, and many others are seeking clinical work in and about New York City; and they are finding much more than they anticipated. It required but a short tour of investigation to find that we possess the largest and best obstetrical clinic in the world within our own shores; and we all know that the largest and best surgical clinic in the world is to be found in our own state of Minnesota; but it is evident that few members of our profession west of the Mississippi, are acquainted with the work of The Society of the Lying-in Hospital of New York City. If they were, they would not allow the opportunities offered in this institution to go begging. An examination for twelve vacancies on the outdoor staff of the Lying-in Hospital was held on Dec. 7th, and only nine appeared for the examination, and not all of these were successful. It is this circumstance that prompts

this brief description of the wonderful advantages offered in this clinic. The service for which this test was conducted consists of a four-month service, in the outdoor department, with a monthly salary of \$25.00 for car-fare, and with a comfortable room and good meals in the finest hospital building in America. This staff of eleven men delivered 238 women last month (November, 1914), besides the indoor service in ante-partum examination and record-compilation. During the three months the writer has been associated with this clinic the outdoor staff delivered 863 women. Can one imagine such clinical opportunities going begging for men?

The Society of The Lying-in Hospital of New York was founded 115 years ago, and to date has cared for over one hundred thousand women in pregnancy. During the past year 7,339 parturient women were treated, and in that number was 13 per cent of all confinements reported by physicians in the Borough of Manhattan, and more than were reported in the city of Minneapolis the past year. It is a startling fact that 36 per cent, or 24,384, confinements in the Borough of Manhattan were reported by midwives last year.

This valuable clinic has been made possible through the great perseverance and effort of one man, Dr. James W. Markoe, materially and financially assisted by the philanthropy of the late J. Pierpont Morgan, who expended nearly two millions of dollars in the building of one of the most complete hospital structures in America. The estate of Mr. Morgan contributes \$100,000 annually to the operation of the hospi-

\*Dr. Condit sends THE JOURNAL-LANCET this interesting report of his experience from New York, where he has been since September.—THE EDITOR.

tal, twice this amount being required annually to operate the hospital at full capacity. This additional sum is supplied by individual endowments and contributions.

The operating-unit consists of indoor and outdoor departments, the two services providing for a three- to four-month service for fifty-five graduate physicians annually, each having advantage of service in ante-partum examinations for admission to the hospital, in the delivery of women in their homes, and in one month's service as junior house-surgeon. In addition to the graduate service there is an undergraduate department that, during the past year, provided instruction to 119 students, a portion of this number belonging to colleges having an affiliation with the hospital for obstetrical instruction. I have known of members of the outdoor staff delivering three patients in one day. We hear of the positions on the working staff being called a "man-killing" job, but who is not willing to take his chances of being killed at such valuable and instructive work? There would be less hard work if there were more members of our profession willing to do the work, and make application for these clinical opportunities.

The postgraduate clinic of this hospital is another department which is growing rapidly. There are at the present writing twelve physicians, ranging from five to twenty years in practice, taking advantage of this course. We are furnished comfortable sleeping-quarters in the hospital building, that we may be on call at every hour of the day, and, believe me, if we see all that is doing we bid farewell to sleep.

Charities abroad and financial unrest have made it necessary for the hospital to curtail expenses a little, but even that works to the advantage of the student, as only primiparæ and complicated cases are now admitted to the hospital, so in this way each case has a special interest associated with it.

Since the first report in English on "Dämmer-schlaf," the so-called "twilight sleep," was made from statistics on 100 cases delivered in this hospital by Drs. McPherson and Harrar, additional interest, or perhaps curiosity, seems at present attracting an unusual number of physicians to the clinic, but only for a short period, as these men consider themselves expert in "twilight-sleep" technic after observing one or two cases.

New York City is the home of the publishing-house that is trafficking in the sacredness of motherhood, through this soft-sounding title

"twilight sleep," as an advertising medium for their financial gain, even to co-operating with certain department stores and hotels, furnishing lecturers for them; and they are surely working the "sensation" to the limit, with the medical profession as the "goat."

On November 24, 1914, the writer attended the meeting of the Section on Obstetrics and Gynecology of the New York Academy of Medicine, where over six hundred cases of scopolamine-morphine narcosis or amnesia used in childbirth were reported from the various hospitals of Greater New York. The discussion was extremely interesting and instructive, and convinced the writer that this method of painless childbirth is far from being a safe and perfected method for general use; that no routine method of administration can be formulated, as each and every case is an individuality or law unto itself; and that it is not unaccompanied by certain dangers to the child. The writer has witnessed forty-one deliveries in the Lying-In Hospital, and conducted several personally, and there were no two parallel cases in this entire series, and one is impressed with the varied factors to be considered in the use of this toxic drug,—e. g., drug-idiosyncrasy, individual temperament, surroundings, quality of the drugs used, etc.

During the writer's stay at the Lying-In Hospital (three months) 642 mothers were delivered, and in this number practically every complication of pregnancy woman is heir to has been demonstrated. Among these anomalies were 2 ectopic gestations, 3 cases of tonic contraction of Bandl's ring (one of these was delivered under ether anesthesia twenty minutes following the administration of one-fourth grain of morphine; the other two cases were successfully delivered by podalic version, with a living child in all three cases); 5 placenta-previa cases, illustrating all three varieties; 3 cases concealed hemorrhage and premature placental separation; 4 craniotomies; and several twin pregnancies. The following is a summary kindly furnished me by the statistician:

Number of cases out-patient department, 863; In-door department, 642; total 1,505.

Internal podalic versions .....	18
Forceps .....	77
Abdominal Cesarean sections.....	14
Vaginal Cesarean sections.....	5
Curettages .....	41
Craniotomies .....	4
Breech-extractions .....	26

These figures do not include many cases of gynecological surgery, eclampsia, toxemia of pregnancy, complications of tumors, and the poor unfortunate sepsis victims furnished by midwives and meddlesome, unclean physicians. Not a single case of sepsis developed in either service of this hospital during this three months' service, in which a total of 1505 cases were delivered. One of the most valuable departments of the hospital is the solarium, or roof-ward, where all septic cases are treated, the treatment being confined solely to cold applications to the abdomen, stimulating diet, and fresh air. The results are little less than marvelous. One case in particular with a temperature of  $105^{\circ}$ ; hemaglobin, 12 per cent; red count, 1,400,000 gained in four weeks to 40 per cent hemaglobin, red count, 3,000,800; and normal temperature. The patient is at present writing sitting up, and on the royal road to recovery. This solarium is used the year round, the beds being mounted on wheels so that they may be rolled under cover in event of a storm.

Allied with this hospital is a laboratory of obstetrical research, a branch of the Rockefeller Institute, from whose work we will soon have some very valuable instruction. Also a pathological laboratory under the supervision of the resident director, Dr. Losee, wherein blood-culture work and vaccine therapy are very thoroughly executed; Wassermann tests are made on nearly every patient admitted, and free specific treatment offered where indicated. Gross and microscopic pathological preparations are made from all cases resulting fatally. Complete blood and urine analyses are made upon every patient admitted, and followed up thoroughly where indicated.

The museum of this institution is a marvel, and so arranged as to be a very valuable adjunct to the teaching facilities of the hospital. Another valuable department is the nurses training-school.

All the nursing is done by students from the various hospitals of the city and state. The course is of three months' duration. Each nurse is given advantage of a fifteen-day service in each of the various departments. Two hundred and forty-three nurses were given instruction last year.

To make this report as complete as possible, without too much detail, a word must be said of the Social Service Department, under the supervision of a body of philanthropic women who take in hand illegitimate babies, provide homes for them, as well as care for the future of the mothers. This society performs an inestimable amount of good among the poor of the tenement houses, furnishing food, clothing, nursing, and even laundry and scrubbing service to the many suffering unfortunates.

Last, but not least, in this apparently perfect organization, is the teaching staff,—a body of cordial, willing, and expert teachers, who devote many hours daily to instruction, as well as sacrificing comforts of home to go to the assistance of the outdoor staff in the complications met with at night in the out-of-the-way districts of the city, as well as night work in the hospital.

Can we expect or demand a better opportunity than this institution offers for clinical study in obstetrics? And not alone in obstetrics, since every mother confined under the auspices of this hospital is entitled to treatment for herself and child for two years following delivery; and, naturally, this provides a clinic in pediatrics and gynecology of no small scope. Does it not stand to reason that, if such advantages in this particular department of medicine for clinical study exist at home, there must be similar institutions in the other departments? If this be true, what need have we for regrets at the loss of our European clinics? Let us hope that this temporary loss will stimulate improvement and enlargement of our home clinics.



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## THE FIGHT FOR PROHIBITION

The recent attempt made in Congress to submit to the States a constitutional amendment looking to the national prohibition of the sale, manufacture, and importation of alcoholic liquors for personal consumption, was defeated, as it should have been, and the real reason for this defeat was that it proposes what no democracy should enforce on its people. It has nothing to do with the sentimental side or the disease side, because alcoholism, in itself, is a problem for the individual states and municipalities. As a matter of fact there has been for many years too much agitation against the sale of alcohol, and, like most other efforts of this kind, it really adds to and increases the consumption of alcoholic beverages. This may seem a trite statement, but it has been proven, time and again, that all such movements arouse curiosity, suspicion, antagonism, and a feeling that personal liberty should not be restrained.

Then, too, for years in our text-books used in the public schools there have been many misstatements about the use of alcohol. The result is, that children who receive this technical advice, are in no way prepared to assimilate it, and they go out into the world with a lot of fool ideas which they very soon overcome when they bump up against the actualities. Our

readers will remember that two or three years ago a commission was appointed in England to study the question of alcohol and its effects. The commission was composed of some very prominent men, some of world-wide reputation,—physicians as well as laymen,—and their report was absolutely one-sided. They claimed that even the occasional use of alcohol was followed by more or less disastrous results, either temporary or permanent, and they advised that the question be studied over, and that restrictions be placed upon the sale of intoxicants. All of this was very good, but a good deal of it was sentimentalism.

Some years ago in Boston the use of alcohol in the production of disease was studied carefully, especially as the cause of Bright's disease and arteriosclerosis. The efforts of the committee proved, beyond a question, that very rarely indeed has alcohol any effect upon the arterial system, nor does it cause Bright's disease. Of course, there are notable exceptions to these statements, which will apply to any investigation of a subject of this kind.

Very recently, and since the beginning of the war, a prominent superintendent of a large hospital for the insane in England, cleared things up a good deal in one of his statements. He claimed that prohibitionists laid too much stress upon the production of disease by alcohol, and that, as a matter of fact, records and statistics showed that alcohol was not responsible for the number of diseases that had been put upon its shoulders. This report reverses the usual formula as to cause and effect, and he claims that his investigations made him believe that it was the unstable, the neurotic, and the defective types who become alcoholics, instead of alcoholism being the cause of the neurotic and deficient types and forms of disease. This seems to be a rather sensible view of the situation, and certainly much more scientific than the usual one given by the fanatic prohibitionist.

This, however, does not detract from the educational efforts of all thinking men that the use of liquor should be regulated at the various sources of consumption, for the simple reason that there exist so many of the vicious and defective classes who drift into the use of alcohol because of their surroundings, habits, and associations; and it is wise, of course, to put these people out of the way of temptation, but placing prohibition upon the country, or even upon the state, is hardly meeting the issue square-



ly. The time is doubtless coming when many states of the Union will be "dry," at least so-called dry; but, as a matter of fact, it has been shown, time and again, that prohibition does not prohibit, and the only way that the use of alcohol can be moderated and eventually eliminated is by the education of the people, and particularly of the young people. The class of society that one meets, and particularly those who think they are moving in social circles, are the very ones who abuse the privilege, and they are much more responsible for the spread of alcoholism than the poor unfortunate who resorts to it because he has no other prospect of pleasure in view.

The remedy, then, lies at home; and either prohibition or temperance should be constantly preached, and the dangers of alcohol scientifically exposed. It is hardly possible that the millennium will reach us in this generation; but that the use of alcohol may be lessened, seems quite probable.

#### EPILEPSY AND TUBERCULOSIS

An effort to put the neurasthenic among the tubercular has been made by Dr. Head in his very interesting paper published last month. Now comes B. Henry Shaw in the *Journal of Mental Sciences* for 1914, who says that 83.3 per cent of epileptics reacted to tuberculin, whereas only 33.3 per cent of non-epileptics do so. His view is, that the great majority of cases of idiopathic epilepsy were due to the toxemia of tuberculosis at any early age, kept in check, however, by curative effects, auto-inoculation with tuberculin occurring during the fits. This statement, however, applies to Wales and England, and not to this country. Doubtless, many such investigations have been made here; but as yet no definite proofs have been forwarded for comparison. Here is another possibility for investigation of disease by tuberculin; and it temporarily throws into the background the statement of Sir Arbuthnot Lane, who claims that the majority of his epileptics recover by a re-section or ex-section of the colon. Dr. Reed, of Cincinnati, has also claimed that Lane's operation is very beneficial among epileptics.

These two men are just now trying out a new thing for epilepsy, and are going over the same field with the new material to prove that epilepsy is among the curable diseases. It is rather interesting to note the various theories about the epileptic and to note the various efforts to cure

a disease of this type. In the same journal quoted above, J. J. M. Shaw considers epilepsy from a rather different point of view; and his paper is the result of a careful study of the etiology of epilepsy, in which much original work was done with a full account of other data bearing upon the theory he advances. This latter effort has for its theory that the inherent defect in epilepsy is an instability, which may be hereditary, of the nucleoproteid elements of the brain and blood. These nucleoproteids break down, and produce uric acid and other acid products, and there is a consequent diminution in the alkalinity of the fluid. If this alkalinity falls below a certain point, agglutination of the coagulative elements of the blood will occur, with consequent stasis in the cortical capillaries, producing a cerebral anemia, followed by convulsive seizures and other cerebral symptoms. He thinks, too, that the relative sluggishness of the circulation occurring in the early sleep together with the nucleoproteid is a good explanation for the cause of the idiopathic fit. In this he believes that the epileptic, as compared with the non-epileptic, blood, shows a greatly increased rate of agglutination, and that the bromides will prevent their disintegration. He believes, too, that oxalic acid and ammonium oxalate, reduce the number of the fits, particularly of the *petit mal* type. On the other hand, he finds that glycerophosphates, including Sanatogen, a patent medicine compound, increase the severity or frequency of the fits. This latter theory Shaw strikes one as being rather more scientific than a great many theories advanced.

It would be well to keep this theory in mind, and its explanation suggests the elimination of meat in the feeding of epileptics to reduce the amount of proteids and the increase of the bromides, together with such other simple health-regulations as may fit the individual case.

#### TO SECRETARIES OF MEDICAL SOCIETIES

The editor of THE JOURNAL-LANCET sends greeting to all secretaries of medical societies, upon whom honors—and responsibilities—are thrust by loving, but unthinking, associates. For such burdened mortals the editor has a fellow feeling, and it is all the more sincere because he knows the meaning of the constantly recurring duties involved in the work of a secretary, to say nothing of the work that he is supposed to originate, such, for instance, as arresting, try-

ing, and convicting all quacks in his district; planning for interesting and instructive society meetings; furnishing THE JOURNAL-LANCET with the news items about the work and men of his district; keeping records for a punctilious State Secretary; etc.

All honor to the busy practitioner who measures up to the standard of efficiency set by the responsibilities of the office; all sympathy for the man who tries to meet the duties, but fails, even in quite large measure; all — for the man who assumes the obligations, and *forgets*.

In which class do you, Mr. Secretary of a medical society in Minnesota, North Dakota, or South Dakota, belong? Your fellow members know; and, if only unconsciously, they classify you. Will you not do the same, and honor the profession by getting into the first class, if you are not there now?

Let us say a word about sending news items to THE JOURNAL-LANCET. The society and personal columns of every newspaper are widely read. They may contain much that is frivolous, even objectionable, but they are read, and will be until the leopard changes his spots. And so will be read the news items of every medical journal publishing such items. With a clear understanding of the function of such a column, and with a degree of conscientiousness that should be imputed to every editor until he is convicted and sent to the work-house, few objectionable items need be found in such column.

And what about its value, if we must always talk about values? When a man leaves his work to visit the clinics of a neighboring city, or a distant city, possibly one in Europe, he is contributing to the community welfare; when he does so at fairly regular intervals, he is honoring the profession of medicine. He is doing likewise when he diligently prepares a paper for a medical society. For his encouragement, for the information of the public, and as a stimulus to other medical men, such events should be recorded in the secular press, as well as in the medical press. It is a duty of the medical-society secretary—and it should be his pleasure—to furnish such information to the medical journal that reaches the part of the profession especially interested.

Other news items may have lesser importance, but they properly go to make up a readable news department.

We earnestly beg the secretaries of all the medical societies of the Northwest to give serious

consideration to this subject, in a fullness which we have not touched, and do far more than they have done in the past toward giving the profession and the public all proper information about the merits of the profession, and then the profession will take care of itself, even though never mentioned to be "boosted."

#### THE MINNESOTA STATE BOARD OF HEALTH: A BUREAU OR A DEPARTMENT?

As our readers no doubt know, there is a movement on foot to create in Minnesota a State Commission of Efficiency, under which would be placed the State Board of Health, probably with no medical man at its head.

The following correspondence between the editor of THE JOURNAL-LANCET and the Secretary of the Commission, is self-explanatory.

St. Paul, December 22, 1914.

Dr. W. A. Jones,

Minneapolis, Minn.

Dear Sir: Mr. Craig wishes me to acknowledge your letter of December 18th addressed to him.

This Commission has a very high respect for the sincere opinion of yourself and your associates. However, it is compelled to disagree with your conclusions. I have the word of several leading members of the Commission for the statement that if you can propose a plan which will bring the department of health into alignment with the civil administration, insuring co-operation, maintaining efficiency, and promoting economy better than the recommendations proposed by the Efficiency Commission, your suggestion will be cordially seconded by this Commission.

Very respectfully,

JOHN S. PARDEE,  
Secretary.

Minneapolis, December 23, 1914.

Mr. John S. Pardee, Sec.,

239 State Capitol,

St. Paul, Minn.

Dear Sir: Many thanks for your letter of December 22d. I quite understand the difficulties of the Commission, as I told Mr. Craig in my previous letter; but I cannot see why the State Board of Health, one of the most progressive boards in the State of Minnesota, and one of the most wide-reaching and influential boards, whose work has been copied by other states, and whose work has been looked up to by the U. S. Surgeon-General's Office in Washington, should be subordinated to a department, which cannot be in sympathy or harmony with the matters which pertain to hygiene and sanitation.

I believe that the health of the community lies in their education along these lines, and for that reason alone the State Board of Health should be made equal in influence with the Board of Education. It seems to me that the Commission has not given the same consideration to health and hygiene that it has to other newly created departments.

I presume that most of the members of the Commission feel that when doctors make up a board they are looking for their own interests mainly, or that they are not competent to transact business that is supposed to belong to business men, but, as a matter of fact, if you, and your chairman, and the Commission had looked into the business of the State Board of Health, you would find that it is conducted with the same efficiency and economy and thoroughness that any other board is at the present time, which occupies a place in the State of Minnesota.

I am going to make every effort possible and, I think an effort will be made throughout the State, to maintain the State Board of Health as a department, so that it may come into line with the work that is projected for the United States. I cannot help but feel that if we are subordinated to the public welfare that we shall lose our caste and our influence, not only throughout the State, but throughout the United States.

Very sincerely,

W. A. JONES.

### DR. E. P. QUAIN'S PAPER

Dr. Quain's paper has a prominent place in this issue of THE JOURNAL-LANCET because of its general interest and the discussion which followed. Dr. Quain is known among Minnesota men as one of North Dakota's representative surgeons, and he has done much to stimulate and establish rational surgery all over that state.

It was gratifying to have a man of Dr. Quain's standing present at the Minnesota State Medical Association's meetings; and it is by just such papers and their discussion that questions in medicine and surgery are solved.

Dr. Quain has created in Bismarck a replica, in a modified form, of the Mayo clinic, and he has associated with him men of prominence and ability; and his clinic shows the advantage of the close affiliation of high-grade men.

## REPORTS OF SOCIETIES

### MINNESOTA PATHOLOGICAL SOCIETY

The Society held a regular meeting on December 15, 1914. The following are abstracts of the papers presented.

#### THE EVIDENCE FOR THE SPECIFIC PHYSIOLOGICAL ACTIVITY OF CERTAIN CONSTITUENTS OF THE THYROID

Dr. E. C. Kendall, Rochester, Minn.: An investigation of the chemical constituents of the thyroid has resulted in a new method of decomposing the proteins. The many split-products so obtained may be separated into groups, which

are designated A and B. The constituents of Group A are about 4 per cent of the dried gland by weight; the constituents of Group B are about 86 per cent by weight, and the remaining 10 per cent of the dried gland is composed of fibrous and connective tissue and inorganic constituents, as calcium, phosphates, and sulphur.

The iodine in the thyroid is found in both A and B. In normal glands 50 per cent of the total iodine is in A, and 50 per cent in B. It has been shown that the iodine in A is in a different form of combination from the iodine in B. In the near future we hope to determine whether B iodine is a decomposition-product from A iodine; or are the two iodine compounds totally different?

Both A and B are mixtures of a large number of compounds, and they may be subdivided into several fractions. Among the constituents of B there is a compound capable of reducing silver and mercury salts. We have named this constituent R.

Experiments with animals, patients suffering from cretinism and myxedema, and the normal human, have established the following physiological activity: No toxic symptoms can be produced with any of the constituents of B, but in cretinism and myxedema B has a specific action on the skin. The dry, rough, scaly skin is entirely relieved by B. Also in myxedema, subjective symptoms, such as heat flashes, burning sensations on skin, and soreness of bones or joints, are relieved by B. The compound R apparently has a specific action in the relief of muscle cramps. B has no effect on pulse-rate, will not cause gastric disturbances, and does not increase the temperature or metabolic processes. It apparently acts as a general tonic, stimulating the kidney and liver functions.

Group A has very marked physiologic activity. When given in excess the pulse-rate is greatly increased, and metabolic processes are stimulated, resulting in increase in temperature and loss of weight. There are enterogastric disturbances, with loss of appetite, diarrhea, and severe headaches. Given in small doses, it has a beneficial effect, and is really essential for the normal health of patients suffering from cretinism and myxedema.

The purification of A has resulted in the isolation of a compound containing 41 per cent of iodine in organic combination. The physiological activity is not destroyed during the purification, but is apparently retained in this compound.



## THE RELATION OF HYPERNEPHROMA TO ADENOCARCINOMA OF THE KIDNEY

Dr. E. T. Bell, Minneapolis, had his attention called to the structural relationship between the so-called hypernephroma and the adenocarcinoma of the kidney by the study of a case presenting the characteristics of a hypernephroma, and showing, microscopically, definite renal tubule-formation. He indicated that there was little evidence in the literature to support the hypothesis of Grawitz that the hypernephromata develop from adrenal "rests." He also pointed out that it is possible to have renal epithelium undergo changes, such as are seen in these tumors.

## CARCINOMA OF THE KIDNEY

A specimen of carcinoma of the kidney pelvis was presented by Dr. Arnold Schwyzer, of St. Paul.

## STONES IN THE KIDNEY

Dr. A. W. Abbott, Minneapolis, presented a specimen of kidney with stones in the pelvis and cortex, which showed numerous loculi and almost complete destruction of kidney-tissue. He also presented a segment of sigmoid with inflammation of the mesentery, possibly originating from the left uterine tube.

F. L. ADAIR, M. D.,  
Secretary.

## STEARNS-BENTON COUNTY SOCIETY

The annual meeting of the Society was held on Nov. 24th in St. Cloud. The following papers were read: "Diagnosis of Syphilitic Conditions in the Nervous System," by Dr. A. S. Hamilton, Minneapolis; "Why Do Physicians Dispense," by Dr. A. W. Arndt, Paynesville; "Report of Delegate," by Dr. W. L. Beebe, St. Cloud. The papers were thoroughly enjoyed and fully discussed.

It was moved and seconded that our delegate be instructed to vote yes on the amendment to Section 1, Chapter VIII (not Chapter VII, as per instructions and JOURNAL-LANCET reports) and to vote no on the proposed amendment of Section 4, Chapter XI, paragraph 2, line 16.

A rising vote of thanks was given unanimously to Doctor Hamilton for coming up here, and giving us his very interesting and instructive paper and talk.

J. C. BOEHM, M. D.,  
Secretary.

## THE RICE COUNTY SOCIETY

The Society met at the Stewart Hotel, Northfield, on October 30th. There were fifteen physicians present.

Drs. Charles M. Robilliard, F. M. Babcock, W. F. Finley, and Elizabeth M. Barnard were elected to membership.

Dr. S. Marx White, of Minneapolis, read a paper on "Functional Disorders of the Heart." The paper was exceedingly interesting and instructive, and was fully discussed by the physicians present.

The Rice County Medical Society met at the School for Feeble-Minded, Faribault, on November 30th. There were fifteen physicians present.

The purpose of the meeting was to inspect the new Inhoff Tank and Sewerage-Disposal System, recently installed by the state at the School.

Messrs. J. A. Childs, Engineer of the Department of Sanitation of the University of Minnesota, O. F. Woodrich, Sanitary Expert, who prepared the plans for the system, and Dr. Bracken, of the State Board of Health, were present, and addressed the meeting. The physicians, together with the city officials, newspaper representatives, and a few other invited guests, were the guests of the president of the Society, Dr. A. C. Rogers at luncheon.

FREDERICK U. DAVIS, M. D.,  
Secretary.

## RED RIVER VALLEY SOCIETY

The annual meeting of the Society was held at the Commercial Club Rooms, Crookston, on December 17th.

The following officers were elected for the ensuing year: President, Dr. A. A. Just, Crookston; vice-president, Dr. W. S. Anderson, Warren; secretary-treasurer, Dr. F. M. Dryden, Crookston; delegate, Dr. Theo. Bratrud, Warren; alternate, Dr. G. S. Wattam, Warren; councilor, Dr. C. E. Dampier, Crookston; censor, for three years, Dr. W. Randolph, Crookston.

After the election of officers the following papers were read and discussed: "Fractures of the Lower Extremities," by Dr. T. Bratrud, Warren; "Some Clinical Cases," by Dr. G. A. Morley, Crookston.

The meeting adjourned to meet in Crookston again on March 15, 1915.

F. M. DRYDEN, M. D.,  
Secretary.

## KANDIYOHI-SWIFT COUNTY SOCIETY

The Society held its annual meeting in Willmar on Dec. 5th, with sixteen members present.

Papers were read as follows: "The Diagnosis of Functional Disturbance of the Heart," by Dr. S. Marx White, Minneapolis; "Acute Gastric Hemorrhage," by Dr. J. G. Cross, Minneapolis; "Intestinal Stasis," by Dr. A. E. Benjamin, Minneapolis.

The papers and their discussions made an interesting and profitable program.

Officers were elected as follows: President, Dr. De Willis Little; vice-president, Dr. E. B. Johnson; secretary, Dr. J. C. Jacobs; censor, Dr. J. M. Rains; delegate, Dr. C. L. Scofield.

J. C. JACOBS, M. D., Secretary.

## BOOK NOTICES

**PRACTICAL SANITATION.** A handbook for health officers and practitioners of medicine. By Fletcher Gardner, M. D., Captain Medical Corps, Indiana National Guard; First Lieutenant Medical Reserve Corps, United States Army; etc.; and James Persons Simonds, B. A., M. D., Professor of Preventive Medicine and Bacteriology, Medical Department, University of Texas; etc., St. Louis: C. V. Mosby Company.

This work is both a book upon sanitation and practice. One will be agreeably disappointed in perusing the book in finding more than he bargained for. The opening chapters are instructive, and the grouping of the various diseases in Part I is excellent. At first thought, it would seem that the description of the disease with the symptoms, etiology, pathology, etc., was rather superfluous in a book upon sanitation. But upon second thought it seems that the health officer should, above his fellows, be the one man in the community who knows all about the infectious diseases.

The second part contains all there is to know about the questions of general sanitation, from vital statistics to nuisances.

The only thing lacking in the book is a fuller representation of sanitary laws and ordinances. All in all, the book is one that any physician or health officer will find full of vital information.

—P. M. H.

## NEWS ITEMS

Dr. C. M. Golden, of Virginia, has located in Cass Lake.

The new Dawson Surgical Hospital has been opened to the public.

Dr. W. H. Gray has left Keene, N. D., to locate in Ray, N. D.

The Union Hospital at New Ulm has been opened to the public.

Dr. Sverre Oftedal, of Thief River Falls, is to locate in Hendrum.

Dr. F. C. Dolder has returned to Eyota after an extended absence in Chicago.

Dr. O. A. Kvello's hospital at Cokato, was formally opened on December 10th.

Dr. A. J. Paulson, of Flaxton, N. D., has sold his practice, and will locate elsewhere.

Dr. George E. Maloy, formerly of St. Cloud, died at Spokane, Wash., November 5th.

Dr. F. C. Lorenzen, of Elgin, N. D., is establishing a modern hospital at that place.

Dr. J. L. Devine has left Lansford, N. D., and is now at the St. Luke's Hospital, St. Paul.

Dr. R. L. Bye, of Clinton, died the first of December at his parents' home in Lilly, S. D.

Dr. A. E. Clough, of Madison, S. D., has retired from practice, and has entered the lecture field.

Dr. W. G. Dolan, for twelve years a physician of Cloquet, died December 5th at Jacksonville, Florida.

Dr. A. O. Wipf, of Freeman, S. D., was recently injured in an automobile accident at Yankton, S. D.

Only physicians who are German citizens are being accepted as surgeons for the German army at present.

Dr. Goldie Zimmerman has returned to Aberdeen, S. D., after a year spent in New York City and in Europe.

Roseau and Marshall Counties have joined in the erection of a sanatorium, to be located in Marshall County.

Dr. R. M. Rosenwold, of the Minneapolis City Hospital, has taken Dr. C. C. Hoagland's practice for the winter.

Drs. I. J. Murphy and Harry Klein, both of Duluth, were seriously hurt when their automobile overturned in rounding a corner.

Mrs. Fred Fritsche, mother of Dr. L. A. Fritsche, of New Ulm, is dead. She was one of the pioneers of St. Peter, having settled there in 1856.

The engagement has been announced of Dr. William Bessessen, of Albert Lea, to Miss Beatrice Gjertsen, a well-known opera singer of Minneapolis.

Dr. A. T. Mann, of Minneapolis, was re-elected secretary-treasurer of the Western Surgical Association at its annual meeting, held last month in Denver.

Macalester College (St. Paul) students who intend to take up medicine have formed a pre-med club, that they may better fit themselves for their future study.

Dr. H. H. Healy, of Grand Forks, N. D., was elected president of the North Dakota Public Health Association at a meeting held in Devils Lake last month.

Dr. G. M. F. Rogers, of Austin, has engaged Dr. B. F. McNeil, of Des Moines, Iowa, to look after his practice while he is in Florida during the winter months.

A local committee of women discovered that about twenty-five per cent of the births in Duluth are not registered, as the law requires and as the physicians' plain duty dictates.

The two principal women's organizations in Minnesota, with hundreds of branches, will take an active and vigorous part in the work of establishing county sanatoria for the care of the tuberculosis patients.

Dr. A. W. Abbott, of Minneapolis, and Dr. E. H. Beckman, of Rochester, were elected members of the Board of Governors of the American College of Surgeons at its recent meeting in Washington, D. C.

Dr. W. J. McDonald, who has been practicing without a license at Warroad, was tried last month for an illegal operation resulting in death. He pleaded guilty, and was fined \$1,000, with costs of \$800. Dr. McDonald says he will practice in some other state.

The admirable social-center work done in St. Paul, to which physicians of the city have contributed their services so freely, can no longer be supported by the city council according to a rule of the city attorney. Dr. Arthur Sweeney, who has been prominent in the work, says \$2,000 will be needed to carry on the work this year.

The Watertown (S. D.) District Society held its annual meeting at Watertown, S. D., last month. Officers for 1915 were elected as follows: President, Dr. W. J. Benner, Clear Lake; vice-president, Dr. H. C. Parsons, Watertown; secretary-treasurer, Dr. H. M. Freeburg, Watertown; censor, Dr. Paul Hendrickson, Vienna.

The damage suit brought against Dr. J. W. Andrews, of Mankato, growing out of an

autopsy, was decided in Dr. Andrews' favor by the jury after less than a half-hour's deliberation. It is to be wondered whether lawyers will ever learn that honorable and scientific medical men can conduct their professional business without making themselves liable to successful damage suits.

The Southern Minnesota Medical Association, at its annual meeting last month, elected the following officers: President, Dr. F. A. Dodge, Le Sueur; first vice-president, Dr. M. S. Henderson, Rochester; second vice-president, Dr. John Williams, Lake Crystal; secretary, Dr. W. T. Adams, Elgin; treasurer, Dr. G. F. Merritt, St. Peter. The summer meeting will be held at Red Wing.

The other day there appeared in a St. Paul paper an anonymous letter from a woman who has been a patient in the City and County Hospital for four months. It is a well-worded and hearty appreciation of the work of the hospital,—praise for the cleanliness, praise for the food served, praise for the nurses, praise for the welcome she felt every morning during the one hundred and twenty days she had spent there. Unfortunately, this kind of letter is very rare.

The Mitchell (S. D.) District Society met last month in Mitchell, S. D., in annual meeting. Officers for the current year are as follows: President, Dr. C. V. Templeton, Woonsocket; vice-president, Dr. F. H. Stewart, Kimball; secretary, Dr. F. D. Gillis, Mitchell; treasurer, Dr. R. A. Kelly, Mitchell; delegates, Dr. G. A. Clauser, Bridgewater, and Dr. C. S. Bobb, Mitchell. Papers were read by Dr. E. D. Putnam, of Sioux Falls; Dr. J. C. Clark, of Mt. Vernon; Dr. B. A. Bobb, of Mitchell, and Dr. C. G. Cottam, of Sioux Falls. A banquet followed the meeting.

The following candidates have been assigned to the new Teaching Fellowships in the Medical School of the University of Minnesota: Dr. Golder L. McWhorter, in the Department of Surgery; Dr. S. E. Moore, in the Department of Obstetrics; Dr. H. E. Binger, in the Division of Eye, Ear, Nose and Throat Diseases; Dr. Rood Taylor, in the Division of Pediatrics; and Dr. Ralph Edwin Morris, in the Department of Medicine. Dr. J. W. Calkins has been appointed as Graduate Scholar in the Division of Eye, Ear, Nose and Throat Diseases. A Teaching Fellowship in Medicine is still to be filled, and a number of Graduate Scholarships are still available. It will be understood that these fellowships and



scholarships cover a three years' course in any chosen specialty and in its related branches.

### MINNEAPOLIS CITY HOSPITAL CLINICS

The Minneapolis City Hospital staff will give clinics for graduates in medicine beginning next week. Information may be obtained regarding these clinics at the information desk at the Minneapolis City Hospital.

The following is the schedule of the clinics to be given next week by Division A of the Staff. Divisions A and B give clinics on alternating weeks.

	Subject	Place	Time
Monday, Jan. 11th	Pediatrics	Lymanhurst	8:30-10:00
	Eye, Ear, N. and G. U.	Operating rooms	10:00-12:00
	Contagious	Operating rooms or wards	10:00-12:00
Wednesday, Jan. 13th	Surgery	Contagious building	10:00-11:30
	Medicine	Operating rooms	10:00-12:00
Friday, Jan. 14th	Gynecology	Wards or Clinic rooms	10:00-12:00
	Mental and nervous	Operating rooms	10:00-12:00
		Wards or Clinic rooms	10:00-12:00

### ASSISTANT PHYSICIAN WANTED

Wanted: At Nopeming Sanitarium, near Duluth, early in January, an assistant physician. Salary, \$75 a month, with maintenance. Quiescent tuberculosis not necessarily a disqualification. Address Superintendent, Nopeming, Minnesota.

### FOR SALE

A \$4,000 practice in an up-to-date village of 400 in southwestern Minnesota. No other doctor and three neighboring towns have no doctor. Rich farming community. Population chiefly Norwegian and German. Good roads. Two railroads. Collections practically 100 per cent. Price for practice, including complete set of office fixtures and x-ray, \$650; or will turn it over to purchaser of my residence with office valued at \$6,000. Possession to be given April 1. Reason for selling: am going into hospital work. Address 193, care of this office.

### FOR SALE

Minnesota \$4,500 practice; population nearly 9,000; good schools and churches; large territory; good roads; drug store building and other rentable properties at \$8,000, together with half interest in drug store; seven room residence in drug store building; rent received per month, \$80; my half share in drug store alone \$2,300; registered druggist employed. If neither share in drug store nor properties be wanted, nothing to sell except to take over practice; one speaking Swedish or Norwegian preferred; must sell before March 1st; intend to study abroad; no better proposition offered; parties interested having cash and meaning business only need answer. Income from practice and drug store, \$6,000 per year. Address 192, care of this office.

### PRACTICE FOR SALE

In a town of 700, a practice established 13 years, and paying not less than \$10,000. Located in the best part of South Dakota. Can be had by purchasing the office equipment at a very reasonable price. All modern equipment, with an X-Ray machine. Reason for selling: death of the physician. Address Box 76, Doland, S. D.

### PARTNERSHIP WANTED

A Minnesota graduate of ten years' experience, thirty-four years of age, American, married, wishes to become associated with a doctor of good standing in a town of 4,000 or over; willing to purchase part of the practice if desired. Now engaged in surgical work. Address 187, care of this office.

### PHYSICIAN WANTED IN PERMANENT SALARIED POSITION

Services required in Specialist's Office. Preference given to middle-aged applicant, having experience in pulmonary troubles. Must be licensed to practice in Minnesota, and able to take a small financial interest in the corporation. Satisfactory salary to right person, with extraordinary opportunity for advancement. Correspondence held strictly confidential. Address 189, this office.

### FOR SALE

Birtman static electric machine; fully equipped with electrodes and one-quarter h. p. motor. Will sell cheap for cash. Apply at 402 Masonic Temple, Minneapolis.

### PRACTICE AND DRUG STORE FOR SALE

Physician having unopposed practice in a good town in a thriving North Dakota community, will give practice to the doctor who buys the drug store. Practice and store net \$4,000 to \$5,000 per year. Invoice of stock and fixtures about \$1,500 to \$2,000, \$1,000 cash will handle this, and possession given at once. Nearest competition 23, 21, 17 and 7 miles in different directions. Address 188, care of this office.

### COUPE FOR SALE

Two beautifully finished rubber-tired, bevel-plate glass physician's coupes; one upholstered in tan, one in navy blue. They cost \$750.00 each, and are practically new. Will sell at a sacrifice. Dr. Chas. T. Granger, Rochester, Minn.

### PRACTICE FOR SALE

Wanted, a Norwegian doctor, with surgical ability, for a very fine practice in one of the best towns in the Red River Valley, N. D. For particulars write or phone Dr. Fleming, Nicollet and Lake St., Minneapolis.

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-eighth annual session opens September 28, 1914, and closes June 5, 1915. New Orleans Polyclinic, P. O. Drawer 261, Post-graduate Medical Dept., Tulane University of Louisiana.





## The Chronic Case Problem

The necessity for Institutional treatment in cases of Pulmonary Tuberculosis, Inebriety and Mental Disorders has long been recognized.

Many other chronic diseases likewise require the special attention possible in a well-ordered medical establishment.

Among the maladies to which Institutional Treatment is especially applicable may be mentioned the following: **Diabetes, Obesity** and other disorders requiring special metabolism studies and individual dietaries.

**Neurasthenia, Hysteria, Nephritis** and other similar cases which demand thorough diagnosis, careful treatment and special dietetic management.

**Intestinal Toxemia**, the mother of most chronic ailments, in which a change of intestinal flora, through radical change of diet and other special means, is essential.

In all cases requiring the use of special diagnostic methods, close medical supervision, metabolism studies, scientifically regulated diet and carefully graduated exercise, The Battle Creek Sanitarium system of treatment is of highest value.

Nearly two thousand physicians and five thousand members of physicians' families have availed themselves of the health opportunities offered here.

More than ten thousand invalids have sought and found relief through institutional treatment at Battle Creek through the advice of their family physicians.

A copy of "The Battle Creek Sanitarium System" will be mailed free to any physician, on request.

**The Battle Creek Sanitarium, Box 350, Battle Creek, Mich.**

## PUBLISHER'S DEPARTMENT

### THE STILL ROCK SPA

The Still Rock Spa of Waukesha, Wis., is a 100-room hospital for the treatment of diabetes and Bright's disease. These diseases are very intractable, and persons suffering from them need institutional treatment far more than the profession commonly recognizes.

Drs. Hodgson and Nicely, of the Spa, have obtained very gratifying results as specialists in their care and treatment of patients of this kind; and they believe any physician who refers cases of this character to them will be highly pleased with their treatment.

### HIGH GRADE RUGS AT LOW PRICES

The W. A. Alden Company, of Minneapolis, has a very high reputation for integrity in their dealings, as well as for taste and ability as purchasers in their exacting line. Only after years of study and experience is a merchant able to buy Oriental rugs right—right for himself and right for his customers. Mr. Alden brings to the business the right qualities; and his customers—thousands of them—are his friends.

The company's annual January sale is a perfectly legitimate one, and offers genuine bargains to customers.

### THE NATIONAL PATHOLOGICAL LABORATORY

The increase in the patronage of the public, scientific laboratories, during their comparatively short existence, is little short of phenomenal; and the fact that the efficiency of their service has been tested by actual results, goes without saying when one considers that their daily findings go into the hands of men at the bedside who know their value.

The National Pathological Laboratory of Chicago makes an interesting announcement on another page concerning its field of work; and we believe our readers will find the products of the laboratory highly satisfactory.

### MUDCURA SANITARIUM

Dr. Fischer, who founded and still conducts the Mudcura Sanitarium at Shakopee, and conducts it on strictly ethical lines, has reason to be proud of his work.

With its enlarged buildings, the institution can now take care of 70 patients, which means a very large number in the course of a year when we remember that the sulphur-vapor and sulphur-mud baths very frequently give immediate results, and that few patients are held in the sanitarium any considerable length of time.

The sulphur-mud found in the Minnesota valley is a remarkable curative agent in a well-defined class of complaints, and Dr. Fischer's institution is to be highly commended to the profession of the Northwest. Its location—only an hour's ride from the Twin Cities—is fortunate.

### GERMAN PREPARATIONS

When the European war broke out, Messrs. Schering & Glatz, the European importers, promptly notified the medical profession that there would be no increase in price in the German preparations sold by them so long as the large supply on hand held out. They did, however, temporarily suspend their announcements in our

advertising columns. We are glad to have them back again and to be able to assure our readers that there seems to be no further fear of failure to obtain their products.

Humanity is under a great obligation to the German chemists, and the medical profession would be in a sorry plight were the German preparations cut off.

We commend to our readers the firm of Schering & Glatz for their honorable dealing.

### SURGICAL INSTRUMENTS AND HOSPITAL AND INVALID SUPPLIES

In our February issue Messrs. Sharp & Smith, makers and importers of practically everything in the surgical or hospital line, will begin a series of interesting announcements.

This firm has established a very enviable reputation for not only honest dealing, but efficient service, and that is the kind of service the medical and surgical profession most desires.

To do things the best way possible, at least very much better than the "average," must be the motto of every firm that expects a continuous growth among men who *know* and who *appreciate*.

Messrs. Sharp & Smith have been seeking to do things in that way since 1844, and they *enjoy* the confidence of the entire profession.

### THE RIVERSIDE SANITARIUM

THE JOURNAL-LANCET takes pleasure in calling the attention of the medical profession of the Northwest to the thorough equipment and qualifications for scientific work possessed by the Riverside Sanitarium of Milwaukee, Wis.

This institution is now in its fifteenth year in the treatment of mental and nervous diseases; and the growth of the Sanitarium during this period has been almost unprecedented.

This institution is comprised of three large, modern buildings, which are utilized in the classification of the various psychoses and neuroses, and contains, as well as an administrative department, laboratories, a hydrotherapeutic department, etc. The Riverside Sanitarium is also a psychopathic hospital and health resort, under competent, experienced management.

The Riverside Sanitarium already merits and enjoys the confidence of the medical profession generally.

### THE REMEDIES OF ANIMAL ORIGIN

A moment's reflection will make every physician realize the necessity for fresh materials for making remedies of animal origin, such as Thyroids, Corpus Luteum, Pituitary preparations, Pepsin, Pancreatin, Thymus, Parathyroids, and things of the sort. There is so much probability of contamination when glands and membranes are shipped long distances that care must be used in specifying the brand with which prescriptions are to be filled. Armour and Company's facilities for collecting and handling this raw material are indisputably the best in the world, and their finished products show that every advantage is made use of.

Corpus Luteum is made from glands that are taken immediately after slaughter, and is guaranteed to be true substance. No other house does or can give such a guarantee.

There is every reason why the doctor should specify Armour's when prescribing any of the organotherapeutic agents.

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## HAIR-BALL IN THE STOMACH: OTHER FOREIGN BODIES IN THE GASTRO-INTESTINAL-TRACT\*

BY W. C. CARROLL, M. D.

Mayo Clinic

ROCHESTER, MINNESOTA

A107,244. E. C., girl, aged 10. Examined in the Mayo Clinic June 3, 1914. The child was apparently normal at birth, and, aside from the contagious diseases incident to childhood, had been healthy and strong. She always appeared bright, and was in the fifth grade at school. The parents noticed no abnormal habits until she was about two and one-half years of age, when she was observed to pull out and chew her hair. It did not at first occur to the parents that the hair was being swallowed. The practice was continued even while the child slept; and an attempt was made to overcome it by putting on a tight-fitting night-cap and mittens. This, however, did no good, as the cap was pulled off during sleep. When she was about five years of age, a bald spot was noticed on the back of her head. The parents believe that the habit has greatly diminished during the past five years, and was scarcely at all noticeable during the past year. Her appetite had always been good; but of late she had wanted to eat frequently and only a very little at a time.

About ten days before examination in the clinic, she had had a severe headache with slight fever and drowsiness. She was moderately constipated. The abdominal pain, which was absent at the beginning of these symptoms, began after a few days and became extensive. She was nauseated, and vomited several times. The abdominal pain became more severe, cramp-like

at times, but was not localized. After remaining in bed one day, she felt considerably better.

*Examination.*—Examination showed a well-developed girl, mentally bright and active; scalp covered by thick, brown hair; tonsils and adenoids, very large. The abdomen was large and especially prominent and tense in the upper right side. The prominence or mass moved downward with inspiration. A distinct tumor with its upper end fixed under the left costal arch could be felt. The mass, which was firm and not tender to pressure, filled the epigastrium, extending to the right just below the costal arch and filling the right side of the abdomen. (See Fig. 1.) The lower portion could readily be moved in any direction. The edge of the liver could be felt independent of the tumor. There was some doubt as to the splenic edge, but it apparently was not connected with the mass. Neither kidney could be palpated. There was dullness over the whole extent of the tumor. No gastric tympany was apparent. Pulse, 80; temperature, normal. Urine, 24-hour specimen, 1050 c.c.; specific gravity, 1012; slight trace of albumin; no casts; no sugar. Blood, hemoglobin, 75 per cent; erythrocytes, 5,080,000; leukocytes, 7,400; polynuclears, 55 per cent; small lymphocytes, 39.3 per cent; large lymphocytes, 1.7 per cent; eosinophiles, 4.0 per cent. Color-index, 0.6.

*Diagnosis.*—Omental cyst, cystic kidney, sarcoma, and hair-ball of the stomach were consid-

\*Submitted for publication September 9, 1914.



ered; but a definite diagnosis was not made, and exploration was done on June 11, 1914, by C. H. Mayo. A median upper abdominal incision was made; and upon opening the peritoneal cavity it was at once seen that the mass was inside the stomach. The incision was enlarged, and the stomach, containing the mass, was brought out on the abdominal wall. The stomach was then opened by a longitudinal incision sufficiently large to extract the mass, which completely filled the gastric cavity and extended for a considerable distance into the duodenum. The incision was closed with chromic catgut and silk, and the abdomen closed without drainage. The pa-

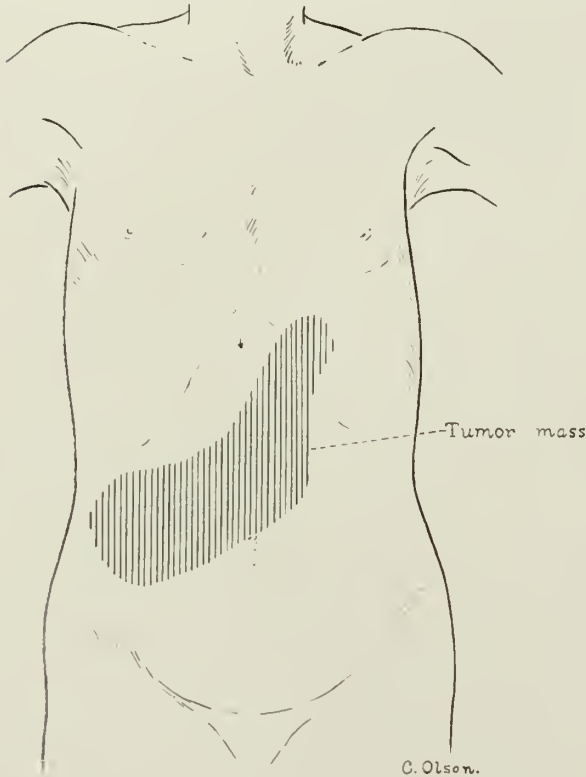


Fig. 1. Diagram showing mass outlined by palpation in Case 1.

tient had an uneventful convalescence, and left the hospital on the tenth day.

*Pathological Report.*—Hair-tumor weighing two pounds. Dimensions, 12x25x7 cm. (Fig. 2.)

Hair-ball in the stomach is comparatively rare in man. Butterworth<sup>1</sup> (1909) collected 41 cases from the literature and reported 1 of his own. Moore<sup>2</sup> (1914) reviewed 54 cases. Of the latter, 49 were in women and 5 in men. The majority were mentally sound. The duration of the habit of chewing and swallowing hair varied from two to twenty-two years. He found that

there was a mortality of 86 per cent in those not operated on. Twenty-eight patients have been operated on with 2 deaths, a mortality of 7 per cent. In 4 cases, the results of treatment were not given.

Only a very small percentage of these cases was diagnosed definitely. Among the diagnoses given were enlarged liver or spleen, omental cyst, pancreatic cyst, cystic kidney, and malignancy. One patient vomited small portions of



Fig. 2. Posterior view of hair-ball tumor. Gross specimen.

hair, and another passed small masses of hair through the bowels.

Holland<sup>3</sup> first called attention to the value of the x-ray in the diagnosis of hair-ball in the stomach, showing how accurately the shadow takes the usual J-shaped appearance. When the hair-ball is large, a picture taken immediately after a small portion of the barium is swallowed, shows a cap-like formation at the cardia. This is due to the barium being blocked by the tumor. After giving more barium and waiting a short time, a picture will show the whole stomach

mapped out by the barium lying between the tumor and the wall of the stomach.

Medical literature contains many striking examples of foreign bodies in the stomach, not only in man, but also in animals, and perhaps more frequently in the latter. Many solid or fluid substances which play a rôle in our general economy may, under abnormal conditions, act as foreign bodies. The age, sex, occupation, and mental condition of the patient are, in many instances, predisposing etiologic factors. Every museum contains specimens demonstrating the variety of foreign bodies that may be taken into the stomach and lodge there. In general, these bodies may be divided into two classes: (1) hard objects, as nails, screws, knives, spoons, forks, buttons, coins, glass, bones, seeds, etc.; (2) soft objects, as hair, strings, vegetable fibers, etc.

Van Divert and Mills<sup>4</sup> report a case of a woman thirty-three years of age who had suffered from acute mania. At post-mortem, 1,446 articles were found. The list included 153 three-to twenty-penny nails, 42 screws one-half to two and one-half inches in length, nine bolts, and numerous other articles, such as teaspoon handles, nail files, thimbles, buttons, tacks, pins, needles, etc. One needle was found in the esophagus, and another penetrating the base of the left lung.

Warren and Gould<sup>5</sup> cite two interesting cases of foreign bodies in the stomach. In the first case were found nails, screws, knife-blades, and various other articles, numbering in all 127, weighing one pound. In the second were found nails, buttons, and glass, weighing two pounds.

DaCosta<sup>6</sup> states that the lodgment of a foreign substance in the stomach is accidental.

In general, the dangers to be feared from foreign bodies are obstruction and perforation, the latter being the more frequent. Perforation may take place soon after the ingestion of the object, or it may be delayed, depending upon the size and shape of the body and the location in which it becomes lodged. However, it is of comparatively rare occurrence, considering the number of foreign substances which traverse the alimentary canal. Perforation is usually slow, and permits adhesions to surround the area, thus protecting the general abdominal cavity from infection. Localized abscesses may form and open to the exterior or into a viscus.

Foreign bodies in animals are due to their propensity to lick and swallow various objects. Cattle chew their food very little before swallowing, and are therefore liable to ingest objects mixed with their food. Hair and indigestible vegetable fibers, as from ripe field clover, etc., often form round or oval bodies which are covered by a deposit of mucus and salts. These bodies may vary in size, and remain in the fore stomach of cattle for a long period. They are often found post-mortem in horses, cows, sheep, and angora cats.

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## NOTES FROM THE GERMAN OBSTETRIC CLINICS\*

BY JENNINGS LITZENBERG, B. S., M. D., F. A. C. S.

Professor of Obstetrics, University of Minnesota

MINNEAPOLIS

Just before I left for Europe a member of the Program Committee asked me if I would write a paper for this meeting on my observations of the latest things from the European clinics.

A paper of this character must of necessity cover more than one subject, and might, on first thought, appear to undertake too much, but, on

the other hand, it is profitable sometimes to take a general survey of certain questions.

I presume this thought was in the minds of the committee, for it is certainly worth our while to know the attitude of the Germans and Austrians toward the vital questions of the day in obstetrics on account of the tremendous amount of their material, which makes their opinions valuable, and gives them the opportunity to experiment with large series of cases in a com-

\*Read at the 46th annual meeting of the Minnesota State Medical Association, St. Paul, October 1 and 2, 1914.

paratively short time and to form quicker conclusions. Their scientific attitude toward every subject, and their willingness to try anything that seems reasonable, render their conclusions worthy of our careful consideration, when we are trying to reach a decision on any scientific subject.

It would be manifestly impossible within the time allotted to me to attempt to discuss at length any of these problems, or to give you the German ideas on all of them; therefore I shall limit the scope of my paper to giving you the position taken by the large clinics in Germany and Austria toward a few of the more vital questions. I have selected for this purpose the Abderhalden serum diagnosis of pregnancy, the treatment of placenta previa, the treatment of eclampsia, and the "Dämmerschlaf," the so-called "twilight-sleep," or "painless childbirth."

I have chosen the serum diagnosis of pregnancy because it is the newest discovery, and represents the laboratory side of our subject; the "twilight-sleep" because it has been given so much publicity; and the treatment of placenta previa and eclampsia because of their eminent practicability.

Please remember that it is the object of this paper to give only the German (and Austrian) point of view and not a general discussion of each subject.

#### THE SERUM DIAGNOSIS OF PREGNANCY

When Professor Abderhalden had proven that the presence of a foreign proteid in the blood stimulated the formation of a specific ferment to combat it, he conceived the idea that the known presence of syncytial cells in the body of the pregnant woman, might cause the formation of a ferment to combat their presence, which, if true, should digest prepared placenta when brought in contact with the blood serum of the woman. This he proved to be true, and his methods were tried in most of the physiological laboratories and obstetric clinics. Then came the reaction, results varied, and some prominent physiologists even declared that his theory was all wrong and his conclusions unsound. Some clinics were enthusiastic over it, and others utterly condemned it. On account of this wide difference of opinion I determined to make an investigation to find, if possible, where the trouble was.

I found a very determined opposition to the method in both of the large clinics of Vienna and in one of the two principal clinics of Berlin,

where they said it was not at all to be relied upon, that it failed in many cases of known pregnancy, was positive in cases that were not pregnant, and was found in other conditions, even in men. Their errors of diagnosis ran as high as 50 per cent. I found that in these clinics most of the work was entrusted to ordinary laboratory technicians. On the other hand, in the Berlin University Frauenklinik of Professor Bumm they regard it as very valuable aid to diagnosis, their percentage of error being less than 10 per cent.

Here the work was all done by Docent Schaefer, who would not entrust a single part of the work to even his assistants who were graduates in medicine, adhering strictly to the statement of Abderhalden that every step of the test must be done personally by the one who was undertaking the work.

The woman's clinic of the University of Halle, Professor Abderhalden's own school, has great faith in it, esteeming it of especial value in helping to make a differential diagnosis in extra-uterine pregnancy. In this clinic of course they have the advantage of Abderhalden's personal advice, though he does not do the work for them except in special cases. Abderhalden told me that his own percentage of errors was less than 1 per cent.

Having investigated the work in these six laboratories, three condemning and three supporting the theory, I came to the conclusion that the fault was not in the unsoundness of the theory, but in errors of the technic. There are so many natural chances of error that, unless the technic is carried out with the most painstaking care, the test will fail. Abderhalden himself had a series of failures, and, in trying to find the cause, discovered that the glassware was at fault, so now he uses only the best of Zeiss glass. I asked him how he accounted for the great variation in results, and he replied with the one word "technic." He told me of two good physiologists working in the same laboratory, one getting only 1 per cent of errors and the other 50 per cent. A laboratory test which is so dependent on the personal equation, and possesses so many opportunities for error, can hardly be relied upon as practical for general use; however, laboratories all over the world are attempting to standardize and simplify the method, therefore I expect to see it emerge into a method as reliable as the Wassermann test for syphilis is today. It is the same old story: we want a laboratory method to be infallible, which it can never be.



## TREATMENT OF PLACENTA PREVIA

There has been quite a controversy in this country recently over the treatment of placenta previa, some saying that there is never any justification for any other than purely vaginal obstetric methods, and others averring that certain cases should be delivered by Cesarean section. The Germans and Austrians have been inclined to hold to the first belief, although some of them have been as enthusiastic in their advocacy of Cesarean section as our most ardent radicals. The first case of placenta previa ever operated on in the Wertheim clinic in Vienna by Cesarean section, was while I was there in May. So you see they have been slow to even try this method. In the Bumm clinic in Berlin, much to my surprise, they advocate vaginal Cesarean section in all cases where a quick delivery is indicated in placenta previa. The German position seems to be that purely obstetric methods usually suffice, but Cesarean section may be justifiable in central or complete placenta previa.

## THE TREATMENT OF ECLAMPSIA

The treatment of eclampsia has traveled in circles, and now seems to be taking another turn. When I visited the German clinics five years ago they were all advocating immediate emptying of the uterus as the only method that offered a good chance of recovery. Schauta, von Rosthorn, Ohlshausen, and Bumm, the directors of the larger clinics, and most of the chiefs in the smaller universities, were teaching that the uterus must be emptied forthwith. Vaginal Cesarean section was the favorite operation when the patient was not in labor and the cervix was undilated. In some places the Bossi dilator was still being used for forcible dilatation, but was even then being discarded in most clinics. Dilatation with bags, manual dilatation, Dührssen's incisions, and, in short, any hurry-up method which chanced to be the favorite with each teacher, was advocated if only the baby could be gotten out at once. Strogonoff, of St. Petersburg (I suppose I should say Petrograd), was then just beginning to try to convert Germany to his conservative method of treatment with morphine, chloral, and rest; but he was meeting with poor success. He was making the rounds of the clinics outside of Russia, and came to Vienna while I was there, and I saw him demonstrate his method, but he made no impression on the Viennese at all; indeed, they laughed at him behind his back. He was no better received

in Germany; and in both countries they continued to advocate delivery as soon after the first convulsion as possible, asserting that the death-rate would vary inversely as the time increased after the first attack. Strogonoff continued his faith in his conservative method till finally the Germans and Austrians were convinced that the method at least deserved a trial.

The essential features of the Strogonoff treatment are the giving of relatively small doses of morphine and chloral, alternately; keeping the patient absolutely free from any external irritation by keeping her in a quiet dark room, allowing no one to enter except the nurse and physician in charge; and the use of chloroform during the convulsions.

The idea of giving chloral and morphine in eclampsia was not new, Zweifel and von Winkel having recommended them long previously; but Strogonoff reduced the giving of these drugs to almost a regular formula, and recommended much smaller doses given frequently enough to keep the patient continuously under their influence. His method of enforcing quiet was also more stringent than had ever been practiced before, so that, taken altogether, his method was such a different application of old means that it might be considered a new form of treatment. At any rate it was a distinct return to conservatism. Strogonoff finally compelled the attention of the Germans by the force of the results in his own large clinic in St. Petersburg. True to their scientific spirit, they tried it thoroughly, as they do everything, and were convinced. Now on my return after five years I find not a single one of the large clinics advocating immediate delivery, but all are using what they call the modified Strogonoff method—that is, they all add venesection to the morphine, chloral, and rest. Some of them advocate the induction of labor as well, others adhering to the belief of Strogonoff that eclampsia is a disease self-limited within twenty-four to forty-eight hours, and therefore labor can be awaited. There is much food for thought in this complete reversal of opinion. It certainly impressed me, for I had already begun to waver in my advocacy of immediate delivery in all cases. I heard Professor Bumm, who five years ago was one of the most ardent advocates of delivery as soon after the first convulsion as possible, concisely sum up the situation thus: "The best treatment of eclampsia, as we view it today, is the conservative treatment of Strogonoff plus venesection

and quick delivery, as contrasted with immediate delivery, which we formerly practiced." He explained that he meant by "quick delivery" a delivery which could be quickly terminated without accouchment force, thus avoiding any shock to the patient.

#### PAINLESS CHILDBIRTH

On account of the publicity given to the "twilight-sleep" in the popular magazines I thought you might be interested in my observations at Freiburg. I went to Freiburg primarily to see their method of deep x-ray therapy in fibroids and cancer of the uterus, but having heard Professor Krönig earnestly advocate the "Dämmer-schlaf" in Chicago, and having read the sensational article in a popular magazine, I determined to look into it as thoroughly as possible. Professor Krönig offered me every opportunity for doing so. He gave me the privilege of the delivery-room and wards, and I was permitted to question and examine the patients. I observed during the week that I was there a dozen cases, and all but one of them told me they remembered nothing after the second injection; the one said she felt and remembered everything. Some of the patients were quiet and in a stuporous condition, and their labor was undoubtedly delayed; others apparently suffered as much as any woman in labor, but they asserted afterwards that they did not know when the baby was born or did not have any remembrance after the second dose.

All of the women had red, flushed faces, and some of them were decidedly excited by the scopolamine. One woman in the Schauta clinic in Vienna required six nurses to hold her after one injection of scopolamine. All of the babies were born blue. Most of them needed some resuscitation, and several of them were asphyxiated, requiring many minutes to make them breathe. One required twenty minutes, and one twenty-five minutes, before breathing was established. None of the babies died, though these two seemed to be "pretty close to the edge." The nurses seemed to be quite anxious about the babies before birth, for they listened to fetal heart sounds every three to five minutes; and one delivery had to be hurried because the baby's heart "went bad." I was told this frequently had to be done. I cannot quite understand why they "never" lose a baby when so many of them are born in an apparently bad condition. I wonder also why it is the popular articles never men-

tion any of the dangers. Everyone in the clinic was greatly disturbed by the article in McClure's. They expressed much resentment against the woman who wrote the article, and made it very difficult for women physicians to work in the clinic for fear that they might be newspaper reporters. They suppressed the sale of the magazine in Freiburg.

My conclusions were these:

1. The method is efficacious.
2. It is not without some danger to the mother.
3. There are distinct dangers to the child.
4. The method is worthy of further investigation.
5. It is not safely applicable outside of a hospital.

#### DISCUSSION

DR. M. M. GHENT (St. Paul): I have enjoyed this paper very much, and especially the frank criticism by Dr. Litzenberg of the German clinician. I suppose the integrity of the Germans is just like the integrity of the physicians in the United States, that is, it is individual or personal, and is probably not to be held up against the clinics in Freiburg. My own personal observation is that usually they were frank, but most of my work was done along other lines, where the final results were shown up by the post mortem, and it is hard to deceive you if you have an examination made in the hands of a disinterested pathologist.

I am sorry Dr. Litzenberg did not speak of pituitary extract or pituitrin, because it is being used in Vienna very extensively; and to my mind pituitrin is the most valuable drug that has been used in obstetrics since chloroform was introduced. I hope the doctor, in closing his discussion, will give us his impression of pituitrin and its use; and, if there is anybody here who is not using pituitrin, I wish he would look the subject up carefully and begin its use in cases where it is indicated.

I was very much surprised that the essayist found a change in the treatment of eclampsia. That interested me more than anything else he said. If eclampsia is a self-limited disease, there is no doubt but that the expectant treatment is probably the safest.

With reference to "twilight sleep": He quoted Dr. DeLee as saying that there were ten cases delivered by forceps. I believe that any medicine that will relieve pain will also prevent a patient from relieving her of her baby, except where morphine is given to allow a hard, rigid cervix to dilate. We all give morphine more or less, and we all give scopolamine; but the "twilight sleep," so to speak, strikes me as a little bit far fetched, and that, while Professor Kronig is ethical and probably was not thinking of advertising himself, yet over-zealous reporters tried to get out an article that would sell, so that it looks suspicious on the face of it, and the doctor's experience there is very interesting to me.

As Dr. Chas. H. Mayo said this morning, "twilight sleep" has started the American physicians to thinking a little, and it may be, we have neglected a thing



here by which we can relieve some of the early acute suffering where the pains are not very effective. It is possible we can develop along that line and be of more benefit to suffering mothers.

DR. B. W. KELLY (Aitkin): Dr. Litzenberg's paper is certainly very interesting. We owe him our thanks for presenting it.

Dr. Ghent's mention of pituitrin is, I think, timely, and brings up discussion of a remedy that is of interest to us all. The saving of time is worth much if it prevents suffering and if there are no dangers attending the use of this remedy. I have often used single doses of pituitrin without any ill results whatever. From the use of two doses, that is, 2 c.c., I think I have had some hemorrhage that I should not have had. Consequently, it seems to me that a single dose is desirable wherever indicated, but that the double dose or second dose has to be given with great caution. None is ever to be given until the os uteri is fully dilated. Better control is sometimes obtained by giving  $\frac{1}{2}$  c.c. for the first dose, and again the same amount later.

As to the use of scopolamine: I was unfortunate enough a number of years ago, when it was first brought out, to have very nice results with a number of cases, but then the "bluc babies" began to appear, and I finally concluded the scopolamine treatment, or "twilight sleep," was not a good thing for me, at least, to use.

In connection with pituitrin, I should like to speak of some of the older things not mentioned. We all use strychnine, and all get good results quite often. One of the older things not mentioned for some time is quinine. In a number of cases just recently, in tedious labors with very light, ineffectual pains, within one-half to three-quarters of an hour after the administration of twelve or fifteen grains of quinine bisulphate, by the mouth, the patient would be complaining of quite a different pain. Perhaps that was a coincidence, but it has happened in quite a number of cases within the last six or eight months.

DR. FREDERICK LEAVITT (St. Paul): I did not intend to discuss Dr. Litzenberg's paper, as I can add nothing to it; but the last speaker in referring to the use of pituitrin said, if I understood him rightly, that no harmful results came from it. I know in my own experience there have been harmful results from the use of pituitrin. I recently gave a dose of it in the second stage of labor, and the result was a severe laceration of the perineum. That is not Nature's way of delivering. Nature's purpose is to deliver the child without laceration, and if we hasten the passage of the child through the canal in a much shorter time than Nature intended, trauma is likely to follow.

A MEMBER: Do you give chloroform?

DR. LEAVITT: No, not always, but I did in this case. Within eight minutes from the time I gave the pituitrin the pains were almost uncontrollable, even with chloroform. The whole second stage was completed in three contractions of the uterus. In this instance pituitrin did more harm than good.

With reference to the treatment of eclampsia: I am satisfied that it does not require the immediate emptying of the uterus. In three cases that I have in mind, the patients were treated for the eclampsia. One went six weeks before she was delivered, one went a

week, and one several days. All three were delivered of a live child, and all three had eclamptic seizures.

Concerning placenta previa and its more recent methods of treatment: There has been little added to the literature or much gained in the treatment. Very recently, in a case of lateral implantation of the placenta, the patient was delivered by rapid dilatation of the cervix, version, and extraction, the whole process requiring less than fifteen minutes; and yet I got a dead child. In a Cesarean section done recently, it was necessary to cut through the placenta; and, although we got a living child, it was very hard to resuscitate it. The effect on the baby was like that of placenta previa.

I agree with the essayist heartily on the "twilight sleep" proposition. It is nothing very new to us. As long as seven years ago I tried it in almost every case at the City Hospital and in my private practice; and my conclusion then was that while it served a good purpose, so far as the mother was concerned, it was troublesome for the baby. There was too much anxiety connected with the method. The babies were blue, and required artificial respiration.

The essayist mentioned the fact that in one case under his observation it required six nurses to hold the patient in bed. I remember very well of giving two doses of the H. M. C. tablet to a patient, and it required four nurses to hold her in bed because of the delirium.

DR. V. J. HAWKINS (St. Paul): The first and last word in obstetrics, I think, is to stop the criticism of the efforts of men who are trying hard to relieve the horrors of women in the delivery-room. We may criticise their methods of using morphine, scopolamine, hyoscine, and all these things as much as we wish, but, if we investigate these things in our practice until we learn to use judgment in the administration of them as thoroughly as we have in the use of chloroform and ether, we shall surely find that we will save the mother's general condition, so that she will be in a better condition after delivery, and we will save a very large percentage of the babies in spite of the fact that many of them are blue, because we give labor time. We give the mother time to deliver her baby. We save the laceration of the cervix and the perineum, and, in spite of what you may say, we prevent post-partum hemorrhages. The patient is in a better condition, and you have a more complete delivery of everything because the patient did not complain so much of the manipulation necessary to aid these slow cases of placental delivery, although you do it more thoroughly. As I have said before, you will have less trouble with post-partum hemorrhages. That is my experience. In relieving the mother of pain, and especially a primipara, if any of you have used chloroform for a long time, you know that it takes more than the average length of time for a primipara to deliver her baby; and if you are at all observing of your patient you will find that she is like a dish-rag. She is absolutely used up from the use of chloroform. If you do not use anything, and sit there and watch the woman suffering all that time, there is no manhood left in you. Is not that true? You have all attended these cases; and, without criticising someone else, let us find out what this or that man is doing, why he made a mistake, and learn to relieve the suffering parturient. We can do it. We can do it a great deal better

with morphine, scopolamine, hyoscine, and cactine. It gives the doctor a chance to rest, too. Take the patient who is not ready. You want to wait for dilatation or something of that kind. Give a hypodermic, and let the patient rest for a time. Thus you will get rest, and save a baby. You would be compelled to aid in the delivery too early since you have not used something of that kind to relieve the suffering of the mother.

Chloroform is a wonderful agent in obstetrics, as it is everywhere else, but we use it too long. We absolutely use up our patients, as well as our own patience.

In puerperal eclampsia, take the men among us who have had to be conservative and make shift in any way we could among poor people in the country, a long distance from a hospital and other assistance, where we have been placed in that position and have had to depend upon our own resources in the last twenty-five years or more. Have we lost many cases of eclampsia? Absolutely no. We have lost only a small percentage of them if we have gone right at it in a proper way. What causes eclampsia, I do not know, but from my experience I can say this: First, you have a patient in a toxic condition to begin with; you let this patient go on with labor, and if you let her go on suffering from pain after pain the first thing you know is that, like a thunder-clap out of a clear sky, the patient is in a convulsion. I have never yet known a patient to do that who was under the least amount of morphine. I ask if any of you have? I believe irritation has something to do with bringing on eclampsia during labor when we get it most often. There may be other irritations in the cases that are brought on previously, or that come on later, but that is my experience with eclampsia.

In regard to the use of pituitrin: Anything that is as powerful and sudden and rapid in its effect as pituitrin is a dangerous thing; but that does not mean it is not a good thing. It is one of the finest things that was ever brought into obstetrical practice; but you must exercise judgment in using it, as in using forceps and everything else. When you do, you will simply wonder how you got along without it before, because it is certainly a good thing. You all ought to learn to use it.

DR. D. A. HERRON (Comfrey): I wish only to ask a question of the essayist. Dr. Percy, of Galesburg, Illinois, a well-known surgeon and ex-president of the Illinois State Medical Association, has recently advocated the use of thyroid in comparatively heavy doses, in both eclampsia and nephritis. Personally, I have seen benefit in three or four cases of nephritis of pregnancy from thyroid used as he recommends it, and I do not know whether the essayist has had any observations on that subject or not. I would like to hear him speak of this in closing the discussion.

DR. GEORGE S. WATTAM (Warren): I want to take exception to one statement made here today, and that is, that any medicine or any drug that is given for the relief of pain always delays labor. I do not think that is a fact, because we find in many cases where we have a rigid os in the first stage of labor, before there is dilatation, the use of chloroform, morphine, atropine, or of morphine and hyoscine, will distinctly shorten labor.

DR. LITZENBERG (closing): I did not discuss pitui-

trin, because I did not want to cover so large a field. I had to limit myself to certain things.

In reply to the question concerning the Freiburg clinics: They use pituitrin judiciously; and especially in the Kronig clinic they use it for the delayed labor caused by the "twilight sleep," although they published in their papers that there was no delay in labor. I have pointed out the dangers of "twilight sleep." It is dangerous. The popular articles that have been written on it say that it is not dangerous. I am trying to point out its dangers, although they are not extraordinarily great; but when we use any drug or any method we should be simply cognizant of the dangers, so that we may be mindful of the welfare of our patients. I think that this popular agitation has put it up to us who have clinics to try out these things, to make careful observations, and be able to report something of the kind at a later time.

My reason for bringing the conservative treatment of eclampsia before you was because the Germans, with very large experience, absolutely faced about upon the question; and, if they are right, it is the greatest boon to the general practitioner that has happened in obstetrics for a long time, and it is a treatment anybody can carry out. Sometimes you might want to make a certain kind of interference, but, on account of lack of proper assistance and a proper place, you could not do it. Now, if they are right that this is the best treatment of eclampsia, the drastic procedures need seldom be employed.

I have had some success in delivering women immediately by vaginal Cesarean section, by rapid dilatation, by Dührssen's incision, etc., and I made up my mind that emptying the uterus was the thing. It is the same old story in eclampsia; you go along and have fine results for a while, but if you practice long enough you will get dire results. In the last two cases in which I resorted to vaginal Cesarean section I lost both of them. One was a case I felt I ought to have saved, and the other case was one of last resort. That made me pause, and investigate the Stroganoff method; and I found out they came to the same conclusion with a large series of cases, and I made up my mind I was going to become more conservative in the treatment of eclampsia. But you must remember that there is another phase that should be borne in mind, and that is quick delivery, not immediate delivery.

I presume the discussion on "twilight sleep" is one similar to that had on chloroform and ether when they were first introduced. They were introduced to relieve pain; and people began to get bad results, patients died, and there was a reaction. I do not know but what this may be the beginning of a real boon to humanity. There is this about it: If it is true that "twilight sleep" will do what some people say it will do, and the dangers are not too great, there will be more babies born because more women will undertake to go through the ordeal of labor. That sounds like a facetious remark; but it is as true as humanity itself. Race suicide is due more to the fear of child-birth than the fear of large families. Stroganoff's statistics serve to make the Germans sit up and take notice. He had a series of several hundred cases with three per cent deaths. That was an unusually good series.

I have had no experience with the thyroid treatment of eclampsia, and therefore shall not presume to discuss it.



## NOTES ON THE CONSTRUCTION OF MEDICAL PAPERS\*

BY MRS. M. H. MELLISH  
Editor, Mayo Clinic  
ROCHESTER, MINNESOTA

## INTRODUCTION

Notwithstanding the many excellent suggestions to writers already published,\*\* it seems worth while, even at the risk of repetition, to place on record a few of the methods which in our experience have been found most useful.

## TOPIC

In selecting a topic for his paper, the young author is subjected to varying influences, the most unfortunate of which is his conviction that he "must write something." This usually leads to his accepting, without realizing the amount of work involved, an invitation to read a paper before a society. In such case the paper should be written from the most available material at hand and that which is most suitable for the audience and the occasion. Not only should the author choose his topic from the most available material of which he has made some original study, but, what is of greater importance, he should choose it from material of which he may have an opportunity to make further studies and investigations. Too often the young physician overlooks this point or considers it impractical; and in his haste to appear in print he prepares his first of a series of widely disconnected papers which are the result of a wasteful misdirection of his energy, and assists only in further burdening with unrelated data an already overburdened medical literature. The author should early appreciate the fact that, not only his surest means of recognition by his professional associates, but also his surest means of ultimately adding somewhat to the sum total of scientific knowledge, lies in the thorough and persistent study of a single subject rather than in a desultory study of many subjects. In a series of articles giving the results of continued observations on the same topic, material already published should not be repeated. The author must particularly guard against this practice. A brief summary or a reference to previous articles is quite sufficient for the intelligent reader.

## TITLE

The title of a paper should set forth the character and extent of the ground covered in the article, not only to enlist the attention of the interested reader, but also for the convenience of future reviewers and bibliographers. Valuable material is often hidden under a casual or irrelevant title. If only a limited phase of the subject is to be discussed, e. g., the surgery, the limitation should be stated. *The title should be a concise and brief index of the material under discussion.*

## MEDIUM OF PUBLICATION

While the chosen audience determines, not only the subject, but the phase, method, and scope of its development, it is, conversely, true that the chosen subject determines the audience and the journal in which the paper should be published. This is especially true when it is desirable to announce without delay a new method or a new discovery. The deplorable custom of publishing miscellaneous articles in journals purporting to cover only special subjects, and of publishing special articles in journals covering a miscellaneous field, is not only wasteful of the reader's time, but is also a persistent annoyance to the reviewer compiling data on a particular topic.

It is not within the scope of this paper to make a plea for the reduction of the number of journals, for the more sharp limitation of their fields, or for the appointment of editors with full authority to accept or reject material according to their best judgment. The time is coming, however, when a general movement toward these ends must be made by the entire medical profession.

## LENGTH OF PAPERS

A paper should be brief and clear, demanding only enough of the time and patience of the audience to permit the presentation of the essential points. The practice in some of our medical societies of reading only abstracts of articles, thus giving more time for the discussion of a subject, might well be adopted more generally. It is worthy of note that an abstract will usually be found to contain all that is essential of the original article. Orations for special occasions may occupy more time; but, even under such

\*Submitted for publication Sept. 15, 1914.

\*\*For example, Allbutt (T. Clifford): "Notes on the Composition of Scientific Papers," Macmillan & Co., London, 1904.

Manly, (J. M.) and Powell (J. A.): "A Manual for Writers," Chicago, 1913.

American Medical Assoc.: Suggestions to Medical Authors, Chicago, 1914.

circumstances, it is better to err on the side of brevity. Special papers not intended to be placed before an audience may contain observations, results of investigations, and descriptions of interesting cases more in detail. However, should an article necessarily extend beyond five thousand words, it may be wise to publish it serially or in a monograph. If published serially, an opportunity is also afforded for more complete investigation of the subject.

#### ARRANGEMENT OF NOTES

Assuming that the author has completed his studies on his own material, that he has familiarized himself with the literature on the subject, and that he has made careful notes on cards or sheets, the next step is the arrangement of such notes in logical working order. They must be classified according to the plan best adapted to the presentation of the author's own work, which may necessitate a further subdivision of his notes on the literature. *Definiteness, accuracy, and uniformity in references cannot be too strongly urged.* Time is saved in recording data and making abstracts at the time the literature is read.

#### OUTLINE

Following such an arrangement, the next step is the construction of a definite framework on which to build the body of the paper. The importance of making a complete outline will always be appreciated after it has once been done. While outlines must be varied according to the subject under discussion, in general the following may be adapted to almost any scientific subject:

A. *Introduction*.—This should give the object of the paper, the character and extent of the original data to be discussed, and the sequence of the article, if it be one of a series.

B. *Historical*.—This should give a review of the literature of the subject, re-state briefly the author's own previous studies, if any, and, when possible, summarize the views of contemporary workers in the same field.

C. *Materials and Methods*.—This should include an exact statement of the character and amount of material investigated, of the old and new methods of solving the problems, and of the operations, devices, etc.

D. *Results*.—Here should be given a detailed discussion of the results of the investigation, operative procedure, or experimentation. While findings which prove the author's work-

ing hypothesis may properly be given first place in the argument, other findings of a negative character and those of no apparent significance should also be stated.

E. *Summary and Conclusions*.—A brief restatement should be made of the work done and of the conclusions which may properly be drawn therefrom. The author should have in mind that this portion of the paper is usually not only the first portion read, but that it may be the only portion read. Further: if properly made, the summary and conclusions may serve as a most desirable form of abstract to be published by other journals.

#### FIRST DRAFT

Having completed the outline, the first draft of the paper should be made. If possible, it should be dictated to a stenographer who is familiar with medical terms. Should it be necessary to make it in handwriting, care should be taken to write legibly, leaving wide margins and wide spacing to permit changes and notes of instruction. The use of the dictaphone is obviously more rapid than writing by hand, and perhaps no more difficult when once learned than dictating to a stenographer, since both methods require practice. A quiet place with sufficient space to spread out notes and papers should be selected for dictating or writing. All available precautions should be taken against interruption, which is clearly detrimental to inspiring or consecutive thought. In writing or dictating from the classified notes and references the outline of the paper should be closely followed. Dictating from memory leads to inaccuracies in statements and to faulty construction.

#### REVISION

On a clean type-written copy of the first draft of the paper, with wide margins and spacing, one should be able to do all necessary revising, patching, and polishing. The paper should have several careful readings for the following purposes:

1. Changes in the arrangement of the material. If the outline has been properly made and faithfully followed few changes may be necessary.

2. Additional data, ideas, missing links in the argument, etc. The author cannot be too careful in this portion of the work to eliminate inaccuracies and incomplete statements, unverified data and statistics, incorrect proper names, dates, numbers, and bibliographic references.



3. Proper placing of illustrations and sub-headings, and the order of arrangement of bibliographic references. While the headings may be determined by the outline, they may frequently be best inserted after the first draft of the paper has been made.

4. A final review of the diction. In this review a fine discrimination must be exercised in the choice of words, in the arrangement of phrases, and, in general, in the consideration of the impression which will be conveyed to the hearer or the reader. For example, if the writer will imagine himself in the place of the reader or the audience he will be quick to note how frequently a strong point is weakened by repetition. A speaker may safely drive his point home by repeating once, while a second repetition is always fatal. A writer may not effectively repeat, save in other words.

## CRITICISM

After the paper has been revamped, pruned, and elaborated, it should be rewritten, and then, if possible, laid aside for several days, when it should again be reviewed by the writer. Following this, it should be submitted to the criticism of others who should revise it from the standpoint of the subject matter and, also of equal importance, from the standpoint of diction. If only minor changes are made, they may be inserted in type-writing. If, however, extensive changes are made, it will be best to make a clean copy of the paper before submitting it for publication. In any event, the final copy of the paper should be, at least, in duplicate, the original being sent to the publisher and the second copy held for proof.

## EMERGENCY SURGERY IN COUNTRY PRACTICE, WITH REPORT OF CASES\*

BY M. M. GROVE, M. D.

DELL RAPIDS, SOUTH DAKOTA

In presenting this paper on emergency surgery, I want to allude only to major emergency surgery, and not to minor wounds and bruises.

The attempt of the country surgeon or "occasional operator," as he is often termed, at doing major surgery is frequently ridiculed, and criticized unjustly, not only by the eminent and recognized surgeons, but as well by the lesser lights who pose as surgeons and do little surgery, down to the man who never operates and who seldom makes a diagnosis early enough to operate, if he could. The credit the country surgeon usually gets from the profession is for his deaths, his recoveries being credited to the patient's good luck. And yet every wide-awake practitioner will meet with many emergency cases in a few years' practice where it is imperative, if the diagnosis is correctly made, to resort immediately to surgery to save the patient's life.

Many of those cases which, on superficial examination, appear as slight scalp wounds, are, in reality, cases of a fractured skull with depressed bone; and, if death follows later when recovery seems assured, the cause is usually given as "secondary shock" or "blood-poisoning." This is particularly true of scalp wounds. I have seen

several cases of fractured skulls where the wound appeared insignificant, and were simply sutured and the patients' recovery expected; and yet, in a few days they developed symptoms of pressure from a depression, and later died.

In the past year we have had two fractures of the skull, in each of which cases the attending physician.—I say it without reflecting on his ability,—because of a lack of careful examination, had not recognized the true condition, and had made an attempt at closing the scalp wound where there was a large area of depressed bone-fragments, which we later removed, and then drained the wound.

Many of our other injury cases often appear unimportant, and are termed "slight internal injuries," yet, later on, develop grave symptoms, and terminate fatally, which result might have been avoided if the condition had been recognized, and proper treatment instituted.

Emergency surgery is the most difficult, and often the most disappointing, surgical work we have to do, and is so for various reasons. In the first place, it is often necessary to operate under unfavorable surroundings, and without capable assistance. To begin with, often the condition of the patient is grave, or he is in a state of shock due to severe pain or loss of blood. Possibly,

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the tissues are torn and mangled so that difficulty is experienced in properly closing the wound.

Very little time can be spent in studying the case, as all emergency cases require immediate diagnosis, and prompt decision as to the proper course of procedure. There is no time for preliminary preparation of a patient, and the danger of infection is much greater, giving rise to post-operative complications not usually met with in ordinary major surgery under proper conditions. Whenever possible it is much more desirable that the patient be removed to a hospital, where the case can be handled under favorable surroundings. However, if it becomes necessary to operate under unfavorable conditions, do only what is absolutely necessary, and then remove the patient to the hospital and complete the work.

The important factors in successful emergency surgery in my judgment are (1) to establish early diagnosis by careful and thorough examination; (2) good judgment in choice of operation and necessary skill in its performance; (3) familiarity with the technic best adapted to one's case; (4) favorable surroundings; (5) free drainage in all cases where there is any chance of infection; and (6) last, but not least, the use of a little common sense.

In reporting the following cases, I have chosen such cases as would include various major operations, and yet cases that often appear at first as not serious conditions. I might report numerous other emergency cases of ruptured appendices, incarcerated hernias, ruptured extra-uterine pregnancies, and lesser emergencies; but I have purposely chosen a few of the more unusual and difficult cases, both as to diagnosis and in operative technic, which I have met with in my practice.

CASE 1.—Male, aged 14.

Family history: Father and two sisters died of tuberculosis; one sister tubercular now.

Previous history: Has had several attacks of severe sharp pain in lower abdomen the past two years. A number of times has had to lie down on the street as the trouble has come on so suddenly and severely that he could not get home, usually after running or some other exertion. Has occasionally vomited, but after attacks of pain, which lasted for a few minutes to several hours, the patient felt well except for some soreness and tenderness, principally over lower abdomen. Patient was brought to my office suffering with severe pain, nausea, vomiting; the abdomen was rigid and tender, particularly on right side; temperature, 99°; pulse, 120.

Though the case was not typical, a diagnosis of acute appendicitis with possible volvulus was made on the past history of attacks more than present findings; and operation was advised.

I made a right-rectus incision, and on opening the abdomen found the bowels distended and very much reddened. The appendix was slightly adherent, and filled with fecal matter, but otherwise normal. On further examination I discovered a band about the size of heavy wrapping-cord attached to and extending from the umbilicus downward and free within the abdomen, over which the bowel had become strangulated. The upper end was cut and ligated, and followed downward. I found the lower end attached to the tip of a Meckel's diverticulum, and over this band (probably a congenital urachus), the ileum became obstructed. The obstruction was removed and the wound closed, and the patient recovered nicely. (Since this, the sister has been operated on, and about the same conditions were found.)

CASE 2.—A. S.; male; aged 24; occupation, farmer.

Present history: Shortly before dinner on a rainy Sunday, I received a call to go at once about ten miles into the country. On arriving at the patient's home, I found the young man, while repairing a threshing engine and doing some work on top of the boiler, had slipped, lost his balance, and fallen backwards, striking his head on the end of a bolt projecting through the platform. He was picked up unconscious, and carried into the house with the puncture wound bleeding freely, but soon recovered consciousness. I was told when I drove into the yard that he was not hurt badly, but I was called on account of the bleeding.

I found a small puncture-wound on the left side of the head and posteriorly, just above and about an inch or so back of the ear. I could not detect any fracture or depressed bone; but to be positive I shaved the area, and made an incision, enlarging the wound, and found, to my surprise, that there was a clean-cut puncture wound through the bone, including both plates. I placed him in the car, and took him to the hospital, where his head was shaved and prepared for operation.

The portion of bone punched out by the bolt could not be seen; but, after enlarging the puncture by chiseling away the bone, we found the meninges had been torn, and the large bone-fragments, together with hair and grease and part of his cap, completely imbedded within the brain substance. This was removed, and cleaned out as well as possible, a gauze drain inserted, the wound closed, and the patient put to bed. In one week he left the hospital, and has worked every day since his recovery.

CASE 3.—Patient, Dr. O. O. S., aged 59.

Family history, negative.

Previous history: For the past several years the patient has suffered from periodical attacks of so-called "dyspepsia" or "indigestion," which gradually increased in severity up to the present time. For the past few months he has lived almost exclusively on malted milk and liquids, any solid food, except pancakes, producing severe pain in the stomach. The patient had partaken of pancakes three times a day for the past week. He showed about twenty-five pounds' loss in weight; and his complexion was somewhat sallow.

Present history: About 4 o'clock in the afternoon on October 28th, I received a telephone call to go at once to the patient's residence. I found him writhing in pain, retching and gagging, but with no vomiting. The abdomen was tense and rigid, and the pulse rapid and weak. Then upon a hurried but careful examina-

tion, I concluded that he had a perforation of the stomach, due to an ulcer or malignancy, and I was confirmed in my diagnosis by my colleague, Dr. Eagan.

I at once gave him a quarter grain of morphine, hypodermically; but there was no relief from the excruciating pain, and I repeated the injection of morphine until I had given him a grain of morphine within one hour with partial but not complete relief from pain. I advised operation at once, but as the patient was one of my own competitors, I decided on consultation. While waiting for the consulting physician to arrive, chloroform was administered to relieve the pain. After considerable loss of time, due to the consultant being hindered by bad roads, and to slight disagreement as to the form of treatment to pursue, the patient was taken to the hospital and hurriedly prepared for operation. At this time his temperature was 102.5°; pulse, 130; breathing, rapid and restrained. Under ether anesthesia I opened the abdomen through a median incision. Upon opening the abdomen, and bringing the stomach into view, we found a perforated gastric ulcer located anteriorly upon the lesser curvature near the pylorus. The pylorus was almost completely occluded. The stomach-contents, consisting of undigested pancakes, malted milk, and water had poured through the opening in large quantities. The ulcer was not excised, but, after packing off the lower abdomen, was closed over with a double Lembert suture of linen, and then covered with omentum. A posterior gastro-enterostomy was performed by suture method; and the appendix filled with fecal concretions was removed. After mopping out large quantities of undigested stomach-contents, several drains were placed in the right kidney pouch and in the vicinity of the perforation, and drained through a lateral stab-wound and the lower angle of the incision.

The abdomen was closed, and the patient put to bed in the upright position. His pulse was 90, and temperature 102°.

The patient made an uneventful recovery, and returned home in three weeks. Since the operation he has gained his loss in weight, and eats anything and everything.

CASE 4.—E. M.; male; aged 21; farmer.

Family history, negative.

Previous history: Had only the usual diseases of childhood.

Present history: On July 3, 1913, he was unhitching a team from a corn-plow when one of the horses kicked him in the right side over the hepatic region. I found him suffering intense pain, in a state of shock, with a feeble, rapid pulse, violent vomiting, rigidity of abdomen; liver dullness increased, with some distention of the abdomen. Completing my examination I diagnosed his trouble as a ruptured liver, and urged an immediate operation, which was strongly opposed by his relatives.

I gave one-quarter grain morphine, hypodermically, and left instructions to keep the thighs flexed, to relax the abdominal muscles; and I applied an ice-bag over the seat of the injury. All food and water was forbidden. Early the next morning I was called, and found he had spent a very restless night, retching and vomiting most of the time; and during the night his mother said he had three or four "weak spells." The symptoms were about the same as the previous evening, except the distention was more marked, and there was more rigidity. The pulse was 140, and temperature 102°.

Once during the night he had a sharp, intense pain over the abdomen, the same occurring again in the morning.

Again I urged an operation, and explained the danger of longer delay, and this time the parents consented.

He was taken to the hospital, a rapid preparation was made, and he was operated on at once.

A high right rectus incision was made, and upon opening the abdomen we found the peritoneum badly congested, and the peritoneal cavity filled with free bloody fluid, bile, and blood-clots; also some fresh bleeding still continued. After mopping out the blood and bile, I found the right lobe of the liver ruptured, and a tear running upward about three inches in length, which was bleeding freely, and the inner side of the gall-bladder loosened from its attachment to the liver and the cystic duct torn.

The rent in the liver was closed by deep mattress sutures with a double No. 3 plain catgut, bringing the edges in apposition, and controlling the hemorrhage. The gall-bladder was replaced, and the duct repaired with fine catgut. After cleaning out the clots and free bile more thoroughly, which had spread over the right side of the cavity and filled the right kidney pouch, I placed in a large drainage-tube and several cigarette-drains. An iodoform gauze drain was placed over the laceration, and all the drainage brought out through a stab-wound laterally.

He drained bloody fluid freely for five days, and bile for ten days. The temperature was normal on the seventh day. He made a rapid recovery and left the hospital on the twenty-fourth day. He gained ten pounds the first week after leaving the hospital, and has been in perfect health ever since.

Unless one is perfectly familiar with the proper technic, and has shown the necessary skill in doing major surgery under favorable conditions, he is not justified in attempting major emergency work under adverse conditions. Notwithstanding the opinion of the eminent surgeons to the contrary, and with due respect for the criticism of our competitor who never operates, I firmly believe that any man capable of doing emergency major surgery, and getting good results, with plenty of time in which to study his case, and working with able assistants and under favorable surroundings, is surely justified in performing any ordinary major operation.

#### DISCUSSION

DR. H. T. KENNEY (Pierre): Dr. Grove has said that a man with ordinary skill can do so and so in these emergency cases. I am quite convinced that he used more than the skill of the ordinary physician. I think he displayed considerable skill, and surgical knowledge beyond that which we usually see in ordinary practice.

I would like to relate one case, very briefly, which shows how long a patient may bleed without dying from the effects of it. This case occurred in the nearby town of Onida. The patient was a young man who was thrown from his horse and kicked in the abdomen. He had one foot in the saddle at the time. He was kicked at 9:00 o'clock one evening, and the next evening at about 7:00 o'clock I operated on him, and found the



abdomen full of blood. The meso-appendix was entirely torn loose from the appendix, and there was a laceration of the cecum. We removed a part of the appendix and a part of the cecum, and made a new opening. It was a case of emergency surgery.

I doubled the ileum over, and fastened it in a new position to the ascending colon, put in three drains, and got out as fast as I could. While this young man had a temperature of 103.° and a pulse of 140, at the time, he made an uneventful recovery.

DR. T. F. RIGGS (Pierre): I wish to compliment Dr. Grove on the skill he used in his cases. The chief points brought out in the paper are, in the first place, the matter of diagnosis, and, in the second place, the matter of surgical judgment. There are times when a doctor feels he is not exactly in the right place to urge operation. There are other times when he feels that if he does not urge operation he is not doing his duty; and he is not. There are times when he must operate regardless of the situation or the position taken by the family. A man takes considerable responsibility in doing that unless he can get the consent of the patient, and he may be up against it. A patient will consent before the family does, if he has sufficient pain.

I think the doctor's paper is an excellent one, and the chief points are quick, careful, accurate diagnosis plus skilful handling of each situation as it came.

DR. JAMES L. STEWART (Spearfish): There are many things that come up in emergency surgery in the country that put us at a loss to know what to do. I will cite one case to see what our surgeons think of it. In the Black Hills in the Forest Reserves a man was taken with strangulated hernia. He sent for a doctor. The doctor went out on horseback over the mountains, found the condition the patient was in, and tried to reduce the hernia, but was unable to do so. He said this man must be operated on as soon as we can get him to a hospital. They put the patient on a hay-rack, and drove twenty miles to a hospital. The surgeon operated, and found a gangrenous intestine, and so on. The man eventually recovered.

The point is this: The surgeon criticized the country practitioner. The country practitioner went out there unprepared to do any such work. He did not have sterile material with him, and, moreover, I do not think any man should do an operation for strangulated hernia thirty miles from anyone else. But the surgeon said: "You have done entirely wrong in this case. You should have gone into the hernia, released the constriction, put on a clean dressing, taken the patient to Deadwood, and had the work done there. You had no right to leave the constriction. Any man knows enough to

release that constriction. You could have done it without an anesthetic."

I would like to ask the surgeons present what they think of a procedure of that kind. We are up against these things as country practitioners.

DR. BYRON A. BOBB (Mitchell): I want to compliment Dr. Grove, not only on his paper, but on the success he achieved in these cases, because we all recognize that rupture of the liver and laceration of the cystic duct with hemorrhage, considering the length of time that passed, causes a critical condition of the patient. A pulse of 140 shows more or less shock. The doctor did not say whether the patient was in profound shock or not, in the way of sweating and blood-pressure. He was more fortunate in the case where the liver was ruptured, owing to the fact that he could lay his hand right in it.

In a case I had the patient died the next morning after opening him up and suturing. I used a sharp needle, which should never be used, but I had to use one here which undoubtedly played a part in the unfavorable result.

The emergency surgery done by the physician has to be done in cases of incarcerated and strangulated hernias and hernias within the abdominal cavity, volvulus, gangrene of the bowels through strangulation, etc. Sometimes emergency surgery can be done by the physician at the time by opening up and doing a colostomy, and then later the patient can be taken to a hospital and operated on. The country physician should be prepared to do more or less of this kind of emergency work, and I heartily endorse the position Dr. Grove has taken in regard to it. I believe in it.

DR. FRANK C. SMITH (Yankton): In a practice of nearly twenty years in a large city I had no such emergency cases come to my office, due to the fact that hospitals were within a block with the ambulance service attached, which entirely deprived me of any opportunity to show any ability in that line, if indeed I had any. I wonder if you men who are confronted with conditions like those mentioned, realize the glorious privilege you have in meeting these cases, and the glorious heights you may attain in the possibility of relief under these circumstances. It is a rare privilege the country practitioner has. He is thrown upon his own resources, and shows ability to meet the conditions under such adverse circumstances. It is an opportunity that does not often, if ever, come to the city physician.

THE PRESIDENT: I wish personally to thank Dr. Grove for his paper. It is one of the most practical contributions we have had during this meeting.



## SUBPHRENIC ABSCESS\*

BY N. O. RAMSTAD, M. D.

BISMARCK, NORTH DAKOTA

By the term "subphrenic abscess" is meant an accumulation of pus between the diaphragm and the upper surface of the liver. It is not such a rare condition as we formerly believed. Clinically, the subphrenic space may be divided by the falciform ligament of the liver into right and left spaces, which have independent lymph-channels, and drain different parts of the abdominal cavity. We accordingly have right and left subphrenic abscesses, but the right-sided occur more frequently.

Anteriorly, the space communicates with the free peritoneal cavity, allowing it to be easily infected by any active peritonitis. Posteriorly the space is limited by the peritoneal folds from the liver to the diaphragm. Küttner has demonstrated the presence of numerous perforating lymph-channels in the diaphragm, which explains the readiness with which infection is carried through it in either direction. A subphrenic abscess is not a primary condition, but is practically always secondary to an infection in the abdominal cavity. Occasionally, it follows lung abscess, empyema, or mediastinal abscess. The subphrenic space may be infected in various ways:

First. By direct extension from neighboring organs.

Second. By means of general peritonitis in which the remainder of the peritoneal cavity has been able to overcome the infection.

Third. By infection from the appendix through the lymphatics which pass from the meso-appendix upward behind the cecum to the posterior liver margin, where they communicate with the subphrenic space.

Fourth. By extension through the portal vein, which occurs very rarely. Right-sided subphrenic abscesses follow disease of the appendix, gall-bladder and liver, and the right kidney. Left-sided abscesses follow infection from the stomach, duodenum, the left kidney, pancreas, and spleen.

*Etiology.*—The appendix is now considered the most frequent source of subphrenic abscess. More than one-half of all cases originate in it. Infection from it may spread either through the general peritoneal cavity or through the post-cecal lymphatics. The subphrenic abscess need not

manifest itself immediately after the appendiceal attack. In our experience we have found it as a complication following operation for gangrenous appendicitis, with progressive peritonitis. For a few days following the operation the patient's condition would gradually improve, but in a week or two there would develop a slowly increasing temperature, slight difficulty of respiration, increasing prostration, high leucocytosis, and other symptoms of a progressive sepsis. In such cases we have looked for a secondary abscess, and we have often found it in the subphrenic space. Aside from appendicitis, the most frequent cause is infection from ulcers of the stomach and duodenum. Perforations following ulcers cause severe inflammation of the whole upper abdomen, including the subphrenic space. Gall-stones, gall-bladder infection, and cholangitis, and abscesses of the liver resulting from pyemia or dysentery, are occasional causes. Less frequent causes are infections from the spleen, pancreas, or kidneys.

Bacteriologically, the pus most often contains the colon bacilli, although mixed infection is the rule. Other bacteria frequently found are the streptococci and pneumococci.

*Prognosis.*—Spontaneous absorption may occur in mild infections. Subphrenic abscesses have a tendency to perforate through the diaphragm, but seldom into the peritoneal cavity, stomach or other viscera. If the perforation extends into the diaphragm, and the pleural cavity is free from adhesions, an empyema is quickly formed. If the pleura covering the base of the lung and diaphragm are adherent, the pus will tend to break into the lung, causing a lung-abscess or a perforation into a bronchus, with expectoration of foul pus. By means of prompt surgical efforts the mortality in these cases has been materially reduced during the last few years. The substitution of local anesthesia for general anesthesia has been a marked factor in reducing the mortality. The earlier the diagnosis and operation, the better will be the prognosis.

*Symptoms and Diagnosis.*—The symptoms and diagnosis of subphrenic abscess are by no means typical. Many cases develop slowly; and the local and constitutional symptoms may be misleading, causing the abscess to be overlooked for a long time. An acute infection is usually caused by a gangrenous appendix or by a per-

\*Read at the 27th annual meeting of the North Dakota State Medical Association at Grand Forks, May 13 and 14, 1914.

forating ulcer of the stomach or duodenum. A careful history of the patient will suggest the presence of a previous lesion of the appendix, gall-bladder, stomach, duodenum, or kidneys. The patient will have a gradually increasing fever, malaise, occasionally vomiting, slight respiratory pain on the right side, and loss of weight and appetite. Upon examination we find a temperature of  $102^{\circ}$  to  $104^{\circ}$ , high leucocytosis, and tenderness on pressure over the liver area. Percussion will show a convex line of dullness above the location of the diaphragm; and the lower liver margin will be depressed. Auscultation in the early stages will show lessened respiratory sounds, with a few râles and possibly a small friction-rub above the dull area of the abscess. If there be a pleural effusion of serum or pus, it makes the diagnosis even more difficult. Puncture with a hollow needle will aid greatly in making the diagnosis. The local anesthetic should be injected before the exploratory puncture is made, in order to lessen the shock and pain. If pus is found, the needle should be withdrawn slowly, in order to prevent pleural infection. Occasionally, serum or pus may at the same time be withdrawn from the pleura. The x-ray has been of great value in diagnosing these conditions. A plate will show the high convex line of the abscess above the diaphragm, instead of the straight line of an effusion. The fluoroscope shows, in addition, lessened respiratory excursions of the right lung. In the left subphrenic abscesses, gas is more often found on percussion, and the epigastrium area is bulging and tender. The left border of the liver is low, and the heart is displaced upward.

In differential diagnosis, pleural exudates, empyema, lung abscesses, liver abscesses, and the echinococcal cysts are to be considered. The primary causes of subphrenic abscess, must be borne in mind in making the differential diagnosis.

*Treatment.*—We must first consider the preventive treatment. The modern surgical treatment of acute appendicitis, chronic ulcers of the stomach and duodenum, cholecystitis, and other intra-abdominal conditions has prevented the formation of subphrenic abscesses in many instances. After the diagnosis has been made, the sooner drainage is established the better will be the patient's chance of recovery. If the pus is in the right posterior part of the subphrenic space, incision in the lumbar area, and a careful finger-dissection underneath the diaphragm, will reach the abscess, and allow drains to be inserted. However, in most cases that we have seen, the

abscess has not been low enough to be reached in this manner, and the transpleural method was used. Under local anesthesia, the eighth or ninth rib on the right side is resected. Usually, the two pleural surfaces are found to be pressed closely together by the upward pressure of the abscess, and frequently they are adherent. If the pleural surfaces are free, the two layers are accurately sutured together with catgut. An incision through these layers and the diaphragm gives direct access to the subphrenic space, and allows good opportunity for suitable drainage.

Owing to the general weakened condition of these patients, and especially on account of their difficulty of respiration, due to pressure of the abscess on the lungs and diaphragm, we have found general anesthesia to be very dangerous; in fact, it is more dangerous than the operation. We have for a number of years used only local anesthesia in these cases, and we believe that we have in this manner greatly lessened the operative risk.

Left-sided subphrenic abscesses are best drained through an abdominal incision to the left of the ensiform cartilage.

In order to illustrate the course of some of these cases, a brief clinical review of a few of them will be presented.

#### CASES

CASE 1.—J. S., a boy, aged 18, entered the hospital with the following history: Two and a half weeks ago he was kicked over the appendiceal area by a horse. Several days later he noticed a swelling in the right lower abdomen. One week later he began to have pain in the right lower chest, and four days ago coughed persistently, and began to spit up large amounts of foul pus.

Examination showed a subphrenic abscess, which was operated on under local anesthesia through the right pleura. Four days afterward, he developed a right-sided empyema, which was treated by rib-resection and drainage, local anesthesia being used. Twelve days afterward, under local anesthesia, an appendiceal abscess was drained. He made steady improvement, and left the hospital a month later.

CASE 2.—Mrs. A. F. K., aged 26, entered the hospital with a history of irregular menstruation, abortion, and curettage at her home; eleven days previously she had a high fever, and had been very ill for one week. Examination showed a temperature of  $104^{\circ}$ , leucocytosis and the symptoms of severe sepsis, and an accumulation in the subphrenic space. Under local anesthesia, the right ninth rib was resected, the pleural surfaces sutured, and a large pocket of pus found in the subphrenic space. She left the hospital in six weeks, after a slow but uninterrupted convalescence.

CASE 3.—C. C., a boy, aged 14, entered the hospital with the following history: He had been ill for four weeks with abdominal pain, vomiting, distention and pain after eating. He was very emaciated, was in bad general condition, and looked septic. Examination show-



ed a subphrenic mass, which we believe was secondary to appendicitis. Under local anesthesia a rib was resected, the pleura sutured together, and the subphrenic space drained. He improved steadily; and ten days later a secondary abscess was opened in the lower abdomen, under local anesthesia. After this, improvement was rapid; and he left the hospital in good condition.

CASE 4.—J. H., a man, aged 45, entered the hospital, stating that he had been ill for one week. His temperature was 103°; pulse 140; white-blood count, 14,000, and all the symptoms were of an acute infection, due to appendicitis. The patient's general condition was very bad.

Operation was advised and refused. Two days later, a small tube was inserted through a trocar into an appendiceal abscess, which contained much pus. Two weeks after entering the hospital a subphrenic abscess was diagnosed. Under local anesthesia the ninth rib was resected, and a large amount of pus evacuated through the pleura and diaphragm. He improved for a time; and then his abdominal condition showed further abscess-formation; and abdominal drainage was advised, but patient's consent could not be obtained. He became more and more septic and died from slow absorption of septic material.

CASE 4.—S. W., a ten-year-old girl, entered the hospital after having been sick for five days. She had a progressive peritonitis and gangrenous appendix. The appendix was removed, and pelvic and abdominal drainage inserted. Six days afterward an exudate formed in the right pleura, which was aspirated, and found to be of serous character. Her temperature kept up to 102°, and a high leucocytosis persisted. Three weeks after entering the hospital she began to expectorate very offensive pus, which we believed came from a subphrenic abscess. One week later a secondary abdominal abscess developed, which was drained. Two days afterward a fecal fistula had to be established on account of bowel-obstruction. She made a steady recovery after this and left the hospital well.

#### DISCUSSION

DR. C. N. CALLANDER (Fargo): I have nothing to offer except regarding one means of diagnosis, the doctor has mentioned, and that is the use of the exploring-needle. While these cases are difficult to diagnose, and while some care should be taken to avoid all possible errors, yet the use of the exploring-needle is not without dangers, both as to infection and as to injury to other nearby structures.

DR. R. E. WEIBLE (Fargo): I do not know that very much can be said on this subject following the doctor's exhaustive paper. These are frequent complications with appendicitis. There has been a surprising number of these cases which have gotten well all by themselves by bursting through into a bronchus. I merely corroborate Dr. Ramstad's advice that these cases be drained.

DR. R. H. BEEK (Lakota): During the past year I have seen a case of subphrenic abscess; and the idea of operation was strongly thought of, but the best surgeon of all came to our relief. The abscess ruptured into the bronchus, and the patient coughed up an enormous amount of pus, and, as is oftentimes the case where there is infection of the lung, the most horrible fetor made itself apparent. Apparently, he has recovered from that condition, although all these cases of ruptures through the bronchus do not recover. Oftentimes a

mixed infection takes place or the patient will die of some subsequent infection. The patient is weakened, anyway, as a result of the abscess; and if he has had an abscess very long, is not liable to stand the subsequent infection that is frequently engrafted on the injured lung-tissue.

The history of this case as it started is this. He had been taken with a chill and very severe abdominal pain, and when I saw him, which was several years after the occurrence of his illness, he had been practically well up to the time of the chill, and had been working hard. We had no trouble in diagnosing the subphrenic abscess. Just what caused the abscess is a matter of conjecture: whether it was the rupture of an ulcerated stomach, or whether it might possibly have been a rupture of the gall-bladder, is a matter of conjecture. Several years ago, while in Rochester at one time, I saw operated on there a subphrenic abscess containing an enormous amount of gall-stones, that subphrenic abscess evidently not coming from the appendix. Some stones of very large size were taken out of the abscess-cavity.

DR. RAMSTAD (closing): Dr. Callander made a very practical suggestion in regard to the use of the aspirating-needle. I do not know what the experience of you gentlemen has been with lung abscesses, but with us it is always a great comfort if we are able to prove the presence of pus before the operation. It forms the best argument as to the necessity of drainage or operation in these cases.

In performing the exploratory puncture, I believe Dr. Callander's suggestions should be borne in mind. It should be done very carefully; and it should be preceded by the local injection of an anesthetic to prevent shock and pain. The needle should be a long one, one that will not break and will not clog very easily. You must remember that you are liable to get from the pleural cavity pus or serum, or blood, and you are liable to get blood from the liver after you have gone through the diaphragm.

One good suggestion that has been made is, that the needle be withdrawn very carefully, in order that the muscle fibers of the diaphragm will gradually close down to prevent the fluid from infecting the pleural cavity. Another authority makes the suggestion to be ready to operate in case one finds pus, in order to prevent the infection of the pleura from the subphrenic abscess. Personally, I have seen no damage done by the exploring-needle in these cases; and it has been a great comfort to show the parents or relatives the necessity for further interference. The modern x-ray, however, has made it almost unnecessary to inflict this added interference on the patient. The x-ray expert has now reached the point where he can tell you, practically in every instance, whether there is an accumulation of fluid in the subphrenic space, and he can tell whether this apparent dullness is due to a fluid in the pleura or underneath the diaphragm.

In regard to local anesthesia: Any local anesthesia is serviceable in these cases. We have a preference for novocain and adrenalin, and have also used Scleich's solution with very good results.

In cases of subphrenic abscesses we feel that it is possible to avoid perforation into a bronchus or into the lung tissue by means of a comparatively safe drainage of the subphrenic space.

I wish to thank you all for the discussion and for the interest this paper has brought forth.

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## UNJUST CRITICISM

When medical men cease to be critical, the medical profession will have reversed its gear. Equally true is it, that, when medical men criticise thoughtlessly and unjustly, they are putting sand in the profession's "gear-box."

THE JOURNAL-LANCET receives not a few letters that readily fall into one or other of the above categories. The editor welcomes such letters, and hopes they will not cease to come. He will sort them according to their merits as determined by his light. At this time he wants to deal with the unjust class.

Within a few weeks, as occurs in almost any few weeks of every year, a number of sensational medical articles have appeared in the daily papers of the Northwest; and the names of highly reputable medical men have been used in such articles in a manner that makes these men appear to be sensational advertisers. Such articles bring letters of protest to our desk. This is right and proper; and we should regret a failure to receive them. But it must be remembered that it is not an uncommon thing for some daily papers to open an interview in this style:

Our reporter called on Dr. — yesterday afternoon as the sun was going down to ask his opinion of the value of "twilight sleep"; and his views, so freely and clearly expressed, will be of interest to our readers, and possibly of value to our lady friends. He said, etc.

What he said has additional value, of a certain kind, to the medical profession when it is learned that Dr. — was in Europe at the time of the "twilight" interview; or it is not impossible that Dr. — was only a veterinarian.

Is any less harm done to a physician and to the public by distorting views expressed by such physician in a medical society, and publishing them as an interview, openly stated or made to appear as such? We think not.

What follows such a publication? Letters of protest to the editor of the medical journal supposed to take cognizance of such things. This is very proper; but let it not be forgotten that a physician's reputation is at stake. If such name appears often in the public press, and other circumstantial evidence goes to prove that the physician mentioned enjoys such things, and pays for them, suspicion cannot fail to attach to such name.

Under almost any circumstances, the lay paper is a dangerous place for the frequent, or even the occasional, mention of a physician's medical opinions or acts; and therefore suspicion is a just penalty upon the man who does not keep his opinions and acts out of lay papers.

## GENERAL PARALYSIS, TABES, AND NEO-SALVARSAN

The medical press is now recording with more definiteness the conditions which surround tabes and general paresis, particularly noting the effect of the use of neo-salvarsan, intravenously and intraspinally. Frederic H. Thorne, in the *Journal of the Medical Society of New Jersey*, 1914, records nine typical cases of tabes in all stages of degeneration; and his conclusions are that tabes is a degeneration of the spinal cord due to an infection and proliferation of the treponema of syphilis. The initial attacks seem to involve the pia, which becomes thickened in all cases, and usually surrounds the cord, and not infrequently extends up as far as the pons and the optic tracts. This probably explains why so many cases of optic neuritis accompany tabes. There is a plasma cell-infiltration into the pia and in the lymph-spaces of the vessels in the cord substance. This infiltration is intense in the active cases, but less so in long-standing cases, and is not often found above the pons. There is, too, an increase in the glial element in the cord, which involves both the gray and the white substance. The ganglion cells of the anterior horns and of Clark's column are markedly involved; and here lies the explanation for the



interruption of the reflex arc. All of these conditions are identical in count with the process which is found in cases of general paralysis. All of the experimenters who have used neo-salvarsan and the salvarsanized serum in the spinal canal, report a lesser number of improvements than when the remedy was first employed; and evidently the warning which Erlich gave when he suggested salvarsan for the treatment of these cases, still holds good, that whenever there is active or acute degeneration of the blood-vessels or nerve-cells, salvarsan should not be employed. In many cases, too, that have been noted, general paralysis has been greatly aggravated by the use of salvarsan. Sometimes these patients, who are in fair condition and without much mental disorder, become confused or grandiose after the introduction of the drug. Not infrequently, salvarsan has produced gastro-enteric disorders, partial or complete deafness, and purpura hemorrhagica, to say nothing of the failure of any benefit whatever. All of the cases which have been recorded as improved, are improved in degree only; and if a little more honest inquiry were conducted, it would be found that those who have been recorded as improved, were really in a stationary period. It has been shown, too, that general paresis is less likely to improve than tabes, and also that the intraspinal injection of salvarsanized serum is not always a safe procedure. In 38 cases of tabes and general paresis that were recorded, Salpetriere showed that of 28 cases of tabes, 15 were considerably improved, 10 were slightly so, and 3 not at all. Of 5 cases of general paresis, in two the improvement was very striking, in one it was very slight, and in two there was no improvement. In no case was there a definite arrest of the disease; and treatment had to be prolonged indefinitely, as a return of the symptoms always followed a cessation of treatment.

This review is not very encouraging, but it should not prevent us from selecting cases which promise improvement, any more than we should refuse to operate for a brain tumor when there is a possibility of gain. At all events, the employment of neo-salvarsan should occur under the most careful surroundings, and never should be used indiscriminately or for all classes of cases.

#### BRAIN SURGERY AT THE FRONT

Surgeons at the front, and particularly in the great field hospitals, in Europe have exceptional opportunities to note the effect of bullets, shrap-

nel, and broken shells. Their reports on wounds involving the head will be of special interest. When the medical and surgical history of the present great war is written, it will give the world a clear account of skull and brain lesions that differ from the usual and common injuries which we see occasionally.

Already we are receiving details of the trephining of fractured skulls caused by the impact of metals. Doubtless many of these cases are simple fractures, which produce a temporary shock; but a large number of the wounded that survive must have depressed fractures or punctured wounds involving injury, such as laceration or penetrating wounds of the brain. Professor Bockenheimer and Chief-Surgeon Leutkenmüller of the German field hospital at Laon, France, have instituted what they call the "human repair shop," where wounded soldiers have been trephined in more than a score of cases. These surgeons have already begun a system of re-education of men who have wounds involving motor centers. They are now taught to speak, and to move their hands, arms, and legs just as men who have suffered from arterial lesions, tumors, or other conditions which have incapacitated definite centers in the motor areas. It will be interesting to follow the success which the surgeons hope to attain. It has been definitely settled already that injured regions may be partially restored by educational method, or that connecting areas may be educated to take the place of regions destroyed. An aphasic may, by long and persistent efforts, be made to make his wants known by articulate speech; and we have many illustrations of men regaining the partial or nearly complete use of an arm or leg after a severe lesion of the brain.

The modern bullet leaves a small and clean track, and does but little damage after shock has passed off. Much, then, may be expected in the way of recovery from wounds of the brain. The process of education is necessarily slow as the exhibition of objects, and the use of words, must be repeated again and again before a definite impression is made. Nurses and educators must spend hours over individual cases before speech or movement can be acquired. Unending patience and perseverance bring their reward.

We may have to revise again our descriptions of certain centers, particularly our ideas of speech-tracts. We may find that the brain will endure serious injuries with but minor after-effects, but, unfortunately, minor injuries are

frequently followed by permanent destructive lesions that no one can foretell.

The best results will be gained by the elevation of depressed fractures, a condition, too, often overlooked by the surgeon. The immediate results of a brain injury may seem trifling, but innumerable cases of epilepsy and paralysis that have followed in after years, demonstrate the need of immediate and, often, radical surgical aid. Very little harm comes to the man in whom a trephining operation has been done soon after an injury that warrants interference; but if the injury has been allowed to go unattended, an after-operation is less likely to be followed by complete recovery. Too many cases of this kind have been recorded, hence surgical measures are justified, even though the repair of the wound does not seem necessary at the time. It is better to have a trephine applied early than to suffer an epilepsy to develop later.

#### TO MINNESOTA PHYSICIANS

The Roster of the State Medical Association will be published, probably, in our next issue; and, we fear, a good many names will be missing. The reason for this is that some men never pay their society dues on time. Why this is so we cannot guess.

Those who do not pay their dues on time, surrender their insurance, lose one or more copies of *THE JOURNAL-LANCET*, and get the reputation of being careless in important matters.

This warning may be equally needed in many other states.

## CORRESPONDENCE

### OBSERVATION ON THE INCIDENCE OF TUBERCULOSIS ON DIFFERENT RACES

TO THE EDITOR:

My observations have covered a period of over nine years in this territory (the southern half of Morrison County, Minnesota). As I have not thought them of any special value to anyone but myself I have not heretofore written them down or taken any notes. I now give them to *THE JOURNAL-LANCET* on the suggestion of Dr. A. R. Blakeley, of the State Tuberculosis Exhibit.

Ten miles west of here we have a large Scandinavian settlement. Between them and the

town (Royalton) I live in, there is a densely settled Polish community. Extending east of town for fifteen miles there is a very large settlement of Germans. These people (the German, Polish, and Scandinavian) are, nearly all of them, prosperous farmers. They all live in well-built brick or frame houses, which houses have but little furniture in them, and no carpets; and all of them are heated by the old style stoves, there being not more than two or three modern furnaces in the whole district. As for any method of ventilating the houses in winter—there is none. Storm-windows and storm-doors are used, but never opened in cold weather. The consequence is that a person entering one of these houses at night from the outer air is nearly overwhelmed by the odor of the stagnant, impure air. If there is not a good foundation under the house, they bank the walls three feet high with dirt or manure. They make little or no provision for bathing regularly during the winter; and many of them do not bathe at all, as testified by the condition of the crevices of their skin.

The above will give you an idea of the way all these people live during the winter.

The Polish live by themselves. They have their own churches, schools, and social meetings, and none of the other nationalities go with them, nor are they wanted. They invariably marry among themselves, and so are not brought into contact in an intimate way with other people nearby. Among them I can remember only one case of tuberculosis,—that of a woman. She had been away from home when she contracted the disease. There may have been other cases not brought to my knowledge; but I think I am safe in saying that they have been singularly free from tuberculosis. Even pneumonia has been somewhat rare among them. All this is despite poor ventilation and living in air-tight houses.

The Germans are equally as clannish, and mingle as little with adjacent populations. Tuberculosis is very rare among them also, though it has begun to appear sporadically during the last year or two. I attribute this to the fact that the younger generations have become Americanized and, having lost their clannish ideas, mingle freely with the American and other people, and also intermarry with them.

Now, the Scandinavians live in dwellings similar to those of the Polish and German people, and are equally as clannish. Physically, they

average better than the other two peoples; but tuberculosis, in all its forms, is very prevalent among them. I now have two cases of psoas abscess from Pott's disease, and could readily find a dozen more in the district. Tuberculosis of the lungs is very common. The people themselves say that in over three-fourths of the houses some one has died of consumption in the last fifteen years. This is an old (over forty years) Swedish settlement, in which there was no tuberculosis to speak of until fifteen years ago. Since then it has been steadily increasing. Dr. E. A. Anderson, of Holdingford, who has a large practice among these people, has told me that bone and joint tuberculosis is becoming more common, as well as some of the rarer forms of tuberculosis. My own observations in the same community bear this out.

The above facts, observed by myself and other neighboring physicians, seem to point to the fact that the environment and method of living do not act as a cause of tuberculosis, since the Polish and Germans are free from it. On the other hand, if it happens to get into a community it will spread among those who are brought in contact with it.

It is my opinion that tuberculosis is a markedly contagious disease, and should be cared for as such. It happens to be confined largely to the Swedes here; but, I am sure, it would act the same among the Polish or Germans if it should happen to have a good start amongst them. Investigation has shown that one German living on the border of the Swede territory developed it; also his brother living with him. This was traced to the fact that he had two hired men, both Swedes, who developed it, and, no doubt, had it when they came to his place.

Truly yours,

ALEX M. WATSON, M. D.

Royalton, Minn.

December 20, 1914.

## BOOK NOTICES

THE PRACTICAL MEDICINE SERIES. Vol. II, 1914. General Surgery. J. B. Murphy, M. D., Editor, Chicago: The Year Book Publishers. Price, \$2.00. Series of 10 volumes, \$10.00.

As is already well known, this volume, like its predecessors covers thoroughly a review of the progress of general surgery during the preceding year. Here and there are added valuable comments, criticisms, or suggestions of the richly experienced editor. While in this volume no subject is neglected, that of bone-surgery

receives the most attention. This year's book on the subject will not be disappointing to any one desiring a careful review of the subject of the progress of general surgery for the preceding year. —ROBITSHEK.

GUIDING PRINCIPLES IN SURGICAL PRACTICE. Frederick Emil Neef, M. L., M. D., New York: Surgery Publishing Company, 180 pages. Price, \$1.50.

This small volume is, as the author says, a handy manual for the surgeon beginning his career; and, if one follows the principles as outlined, he will find himself well abreast of the times in surgical technique.

Such subjects as sterilization, in all its phases, suture material, anesthesia, course of the operation, and after-care of patients are treated in detail, and especial attention is given the chapter on the relation between the surgeon and his assistants, noting the legal responsibility of the surgeon.

The book is well worth any one's time, but it is especially valuable to a young surgeon who intends to operate his own hospital in a small town. —NEWKIRK.

THE PRACTICE OF SURGERY. By James Gregory Mumford, M. D., lecturer on Surgery in Harvard University; Surgeon to the Clifton Springs (N. Y.) Hospital; etc. Second edition, thoroughly revised, with 683 illustrations, New York and London: W. B. Saunders Co., 1914.

Dr. Mumford dedicates his volume to "my friends and associates in the Society of Clinical Surgery," and this dedication, in a way, illustrates the scope of the book, because the book is obviously more of a text for the finished surgeon than for one who is not familiar with the practice of surgery. It reflects the author's broad experience in general surgery. The chapter on minor surgery is quite complete, as are some of the other chapters.

A perusal of some parts of this work would make one feel that certain subjects should have been gone over a little more completely. For instance, in the chapter on harelip and cleft-palate, the work will hardly act as a guide even to the experienced surgeon.

The advice given throughout the book is sound. The make-up of the book, including illustrations and type, is excellent.

—FARR.

PHYSICAL BASES OF CRIME: A Symposium. Papers and discussion contributed to the thirty-eighth annual meeting of the American Academy of Medicine, Minneapolis, June 14, 1913, pp. 188, Easton, Pa.: American Academy of Medicine Press, 1914.

This book contains 188 pages of information, which no person who is interested in the welfare of humanity can afford to be without. It gives in a condensed form information which it has taken years of investigation to obtain. It clearly states the opinions of a large number of investigators along criminologic and sociologic lines, gleaned from years of observation and experimentation. Although entitled "Physical Bases of Crime," it covers the mental and psychical phases also.

The names of contributors are very numerous. Among them are judges; doctors of philosophy, law, and medicine; psychologists; superintendents of prisons and reformatories; and investigators of recognized ability along these lines. The papers make interesting and instructive reading, covering such topics as delinquency, feeble-mindedness, parental diseases, cranial injuries, newspaper publicity, social conditions, heredity, drugs,



syphilis, and alcohol in their relation to causes of criminality.

One is profoundly impressed with the difficulties presented to the investigator, and by the many factors contributing to the making of a criminal. The great difficulty at present in arriving at scientifically correct deductions, is the lack of statistics covering our prison populations.

One very interesting feature which is thrust on the reader, is the almost prevailing opinion among these investigators, that heredity is a very small factor among causes of criminality; and this conclusion is arrived at after fairly thorough investigation. Also that alcohol is probably the greatest of all factors in the cause of crime.

Another important fact shown by available figures of measurements of our prison populations is, that the average prisoner is found to be from two to four inches under-sized as compared with the average normal individual; and that the mental capacities are very much under normal as compared with contemporary normal individuals.

These facts would point clearly to under-development, due to a lack of proper feeding, and under-education, both of which points are set forth in the papers.

The book is a valuable addition to literature of this —MAY.

**ABDOMINAL OPERATIONS.** By Sir Berkeley Moynihan, M. S. (London) F. R. C. S., Leeds, England. Third edition, entirely reset and enlarged. Two octavo volumes, totalling 980 pages, with 371 illustrations, 5 in colors. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$10.00 net; half morocco, \$13.00 net.

The first volume takes up the preparation adopted by surgeons and assistants, the method of operating by the use of general and local anesthesia, complications sequele, abdominal incisions, subsequent treatment of abdominal operations, gastric, and intestinal surgery.

In this volume Moynihan describes the various gastric and intestinal operations including some of his own personal views and special technic.

To Moynihan, as much as anyone else, is due the credit of simplifying gastric and intestinal surgery; and his chapters upon these subjects are particularly good. He has converted difficult and dangerous operations into safe and satisfactory ones.

In the second volume the large intestine and appendix are considered, as well as diseases of the liver, pancreas, and spleen.

The chapter on surgery of the large intestine considers the removal of growths and resection of the same. The one on rupture of the intestine and intestinal obstruction, takes up the various causes for rupture of the intestine, operative technic, the cause of obstruction and the surgical management.

The chapter upon embolism and thrombosis of the mesentery vessels, while short, is sufficient to remind the general surgeon of this condition.

The one upon fecal fistula is unique in the number of illustrations and its treatment.

The chapter taking up treatment of diseases of the liver and their surgical management is interesting and valuable reading inasmuch as it shows what can be

accomplished by timely and careful surgery applied to this organ, especially in case of abscess, localized growths, and cirrhosis.

Mr. Moynihan excels in gall-bladder and common-duct work; and in this volume he has brought out many noteworthy suggestions considered in his book upon gall-bladder disease.

The chapter upon pancreatic disease is especially worthy of mention. The work is up-to-date in every particular. The author gives a number of prominent American surgeons credit for operations devised by them.

The make-up of the book is good, and all operations are well illustrated, the description of operations being simple and concise. The work although not voluminous is sufficient for most surgeons.

A great many statistics are offered in these two volumes which make the work valuable to surgeons seeking the truth.

—BENJAMIN.

## NEWS ITEMS

Dr. A. E. Philips has left Dickey, N. D., to locate in Delano, Minn.

Dr. C. O. Robinson, of Minneapolis, has located in Mayville, N. D.

Dr. J. B. Dunn, of St. Cloud, is taking post-graduate work in Chicago.

Dr. O. D. Perrin has moved from Stickney, S. D., to Lake Andes, S. D.

Dr. J. L. Shellman, of Nashwauk, is to spend several months in Minneapolis.

Dr. E. L. Goss, of Carrington, N. D., is spending several months in the South.

The Samaritan Hospital building, of Bemidji, burned on Saturday of last week.

Dr. Hermenegeld Klima, of Tyndall, S. D., is taking postgraduate work in Chicago.

Dr. W. E. Robinson, mayor of Rapid City, S. D., is to spend the winter in Arizona.

Dr. John Staley, of St. Paul, has left for Paris to enter the American Ambulance Service.

Dr. H. H. Slocum, of Elgin, has bought the practice of Dr. W. S. Hitchings, of Belgrade.

Dr. J. S. Whitson, of Wabash, Ind., has taken over the practice of Dr. G. C. Hanson, of Charlson, N. D.

Dr. L. M. Hardin, of Flandreau, S. D., has returned from a several months' visit to the Chicago hospitals.

The Range Medical Society will meet in Chisholm on January 20th. Dr. Tuohy, of Duluth, will read a paper.

The semi-annual meeting of the Sioux Valley Medical Society will be held in Sioux City, Ia., on the 20th and 21st instant.

Dr. M. T. Savre, of Sharon, N. D., has accepted a position on the staff of the Deaconess Hospital of Northwood, N. D.

Dr. W. H. Long, of Minneapolis, has become associated with Drs. H. A. Davis and Justus Ohage, Jr., of Dickinson, N. D.

Dr. A. W. Robertson, of Litchfield, is spending several weeks in Minneapolis, in the University clinics and in private laboratories.

Dr. O. A. Thorvaldson, of Wild Rose, N. D., died in Minneapolis while on his way to spend Christmas with his parents in Lake Mills, Iowa.

The dentists and physicians of Devils Lake, N. D., have started the medical and dental examination of the nine hundred students in the public schools.

Dr. Charles F. McComb, of Duluth, has been appointed to fill the place on the Advisory Commission of the State Sanatorium at Walker, left vacant by the death of Dr. J. L. Camp.

Mound, Minn., on the upper end of Minnetonka Lake, is without a physician or druggist. It is not a promising field for a physician, and yet some one may make a success in the field.

The Minnesota Legislature will be asked for an appropriation to buy a large tract of land in the northern part of the state to be used as farms for lepers, who will be colonized and helped to make a living.

A proposed ordinance to create "zones of quiet" around the Minneapolis hospitals is scheduled for early introduction to the city council, having been formally approved by the Hennepin County Medical Society.

The sale of Christmas Seals in Minnesota largely exceeded all sales in past years, and is evidence of the interest of the public in all health work. The total amount received has not been announced as we go to press.

Dr. H. E. Robertson, of the Pathological Department of the University of Minnesota, who is spending a year in Germany, is now at work in the laboratory at Freiburg. He is the only outsider now at work in that laboratory.

Dr. H. Longstreet Taylor, of the Minnesota State Advisory Commission, says the present Legislature will be asked to appropriate \$750,000 for the next two years, for increasing the capacity of state sanatoria for consumptives.

The Watonwan Medical Society held its annual meeting in December. The following are the officers for the current year: President, Dr. W. J. McCarthy, Madelia; vice-president, Dr. O. H. Kabrick, Odin; secretary-treasurer, Dr. B. H. Haynes, St. James.

A clearing-house committee on health legislation in Minnesota has been appointed by the various organizations interested in promoting health. Its purpose is to unify all health measures that may be presented to the Legislature by the various organizations.

The Blue Earth County Society elected officers as follows at its annual meeting held in Mankato last month: President, Dr. A. E. Sohmer, Mankato; vice-president, Dr. H. J. Lloyd, Lake Crystal; secretary, Dr. J. H. James, Mankato; treasurer, Dr. Lida Osborn, Mankato.

The Rosebud District Society of South Dakota met last month at Burke, S. D., and elected officers as follows: President, Dr. J. C. Waterman, Burke; vice-president, Dr. R. J. Quinn, Bonesteel; secretary and treasurer, Dr. F. A. Bryant, Herrick; delegate, Dr. M. H. Claggett, Fairfax.

Dr. Emil S. Geist, of Minneapolis, read a paper before the Wayne County (Detroit, Mich.) Medical Society last month. The paper was read by request to the Central States Orthopedic Club that it select one of its members to present a paper. His subject was "Disorders Simulating Weakfoot."

The Pierre District Society of South Dakota met at Pierre, S. D., last month, and elected officers for 1915 as follows: President, Dr. H. T. Kenney, Pierre; vice-president, Dr. R. W. Minard, Midland; secretary-treasurer, Dr. G. H. Langsdale, Highmore; delegate, Dr. C. M. Hollister, Pierre.

Mr. Ralph W. Wheelock, of the State Board of Control of Minnesota, makes the admirable suggestion that the more patients that go voluntarily to our State Hospitals for the treatment of mental disorders the fewer will be the legal commitments. As both care and treatment are free, the medical profession should consider this matter carefully.

The following officers were elected at the annual meeting of the Hennepin County Medical Society, held last week: President, Dr. R. E. Farr; vice-president, Dr. J. G. Cross; secretary-treasurer, Dr. R. S. Maxeiner; librarian, Dr. A. S. Hamilton; delegates, Drs. C. G. Weston, H. L. Staples, H. B. Sweetser, and J. W. Little;

alternates, Drs. J. W. Bell, C. B. Nelson, A. C. Strachauer, and A. S. Hamilton.

The mid-winter meeting of the Northwestern Oph-Lar-Rhin-Otic Society will be held in Sioux City, Ia., on the evening of January 19th. The program will follow an informal dinner. This society is the only one of the kind in the Northwest. It is yet young, but vigorous, and offers an excellent opportunity to its members for co-operative work in its line. Its members are from Minnesota, South Dakota, Nebraska, and Iowa.

The Red River Valley Society held its annual meeting at Crookston last month. Officers for 1915 were elected as follows: President, Dr. A. A. Just, Crookston; vice-president, Dr. W. S. Anderson, Warren; secretary-treasurer, Dr. F. M. Dryden, Crookston; delegate, Dr. Theo. Bratrud, Warren. Papers were read on "Fractures of the Lower Extremities," by Dr. Bratrud; and Dr. G. A. Morley, of Crookston, presented some clinical cases.

Dr. H. J. Rowe, of Casselton, N. D., will spend the winter in Bismarck, where he goes as senator from his district. Dr. Rowe is an old-timer in North Dakota, and has served as secretary of the State Medical Association for many years. The senatorial honor was thrust upon him wholly unsought. A level-headed medical man can easily be the most useful member of any state senate; and, we predict, Dr. Rowe will measure up to his opportunity.

The Winona County Society held its annual meeting in Winona on Jan. 5th. Papers were read by Dr. H. C. Bear, of St. Charles, on "Intra-uterine Hematoma," and by Dr. B. P. Rosenberg, of Winona, on "Functional Kidney Tests." Officers for 1915: President, Dr. H. C. Bear, St. Charles; vice-president, Dr. B. P. Rosenberg, Winona; treasurer, Dr. W. R. C. Heise, Winona; secretary, Dr. H. F. McGaughey, Winona; delegate, Dr. E. S. Muir, Winona; alternate, Dr. E. M. McLaughlin, Winona.

#### FOR SALE

Contract and general practice on Minnesota Iron Range in small town; bright future. Modern facilities; good terms to first-class man. A little money will handle it. Address 197, care of this office.

#### PRACTICE WANTED

In Minnesota or South Dakota town, with some future and where English is spoken. This is wanted by physician who has had several years' experience in practice, and has done laboratory and hospital work. Address 198, care of this office.

#### PRACTICE OR PARTNERSHIP WANTED

In town of 1,000 to 5,000 in North Dakota or reciprocating state, paying not less than \$5,000 a year, by physician just finishing post-graduate work. Competent surgeon and laboratory man. No real estate wanted. Introduction required. Possession Feb. 1. Address 196, care of this office.

#### FOR SALE

A \$4,000 practice in an up-to-date village of 400 in southwestern Minnesota. No other doctor and three neighboring towns have no doctor. Rich farming community. Population chiefly Norwegian and German. Good roads. Two railroads. Collections practically 100 per cent. Price for practice, including complete set of office fixtures and x-ray, \$650; or will turn it over to purchaser of my residence with office valued at \$6,000. Possession to be given April 1. Reason for selling: am going into hospital work. Address 193, care of this office.

#### FOR SALE

Minnesota \$4,500 practice; population nearly 9,000; good schools and churches; large territory; good roads; drug store building and other rentable properties at \$8,000, together with half interest in drug store; seven room residence in drug store building; rent received per month, \$80; my half share in drug store alone \$2,300; registered druggist employed. If neither share in drug store nor properties be wanted, nothing to sell except to take over practice; one speaking Swedish or Norwegian preferred; must sell before March 1st; intend to study abroad; no better proposition offered; parties interested having cash and meaning business only need answer. Income from practice and drug store, \$6,000 per year. Address 192, care of this office.

#### PRACTICE FOR SALE

In a town of 700, a practice established 13 years, and paying not less than \$10,000. Located in the best part of South Dakota. Can be had by purchasing the office equipment at a very reasonable price. All modern equipment, with an X-Ray machine. Reason for selling: death of the physician. Address Box 76, Doland, S. D.

#### PHYSICIAN WANTED IN PERMANENT SALARIED POSITION

Services required in Specialist's Office. Preference given to middle-aged applicant, having experience in pulmonary troubles. Must be licensed to practice in Minnesota, and able to take a small financial interest in the corporation. Satisfactory salary to right person, with extraordinary opportunity for advancement. Correspondence held strictly confidential. Address 189, this office.

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-eighth annual session opens September 28, 1914, and closes June 5, 1915. New Orleans Polyclinic, P. O. Drawer 261, Post-graduate Medical Dept., Tulane University of Louisiana.



REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Fueral Septicemia	Accidental Deaths
Ada	1,253	1,432	6		1		2							1				1
Albert Lea	4,500	5,192	6															
Alexandria	2,681	3,001	6			1												
Anoka	3,769	3,972	6	1														
Austin	5,474	6,960	7															
Barnesville	1,326	1,353	0															
Bemidji	2,183	5,099	8	1														2
Benson	1,825	1,677	0														1	
Blue Earth	2,900	2,219	1															1
Brainerd	7,524	8,526	6			2												1
Breckenridge	1,282	1,840	4	1										1	1	1		
Canby	1,100	1,528	0															
Cannon Falls	1,239	1,385	0															
Chaska	2,165	2,050	0															
Chatfield	1,426	1,226	2															
Cloquet	3,074	7,031	6					1										
Crookston	5,359	7,559	8	1										1	2	1		1
Dawson	962	1,318	1															
Detroit	2,060	2,807	4															
Duluth	52,968	78,466	66	2		3								3	5	9		6
East Grand Forks	2,077	2,533	0															
Ely	3,572	3,572	5												2	1		
Eveleth	2,752	7,036	3			1												
Fairmont	3,440	2,958	1			1												
Faribault	7,868	9,001	7	1										1	1	3		
Fergus Falls	6,072	6,887	9		1									1				1
Glencoe	1,788	1,788	1															
Glenwood	1,116	2,161	*															1
Granite Falls	1,454	1,454	0															
Hastings	3,811	3,983	6	1														
Hutchinson	2,495	2,368	4															
International Falls		1,487	0												1			
Jordan	1,270	1,151	0															
Lake City	3,142	3,142	4			1									1			1
Le Sueur	1,937	1,755	1															
Little Falls	5,774	6,078	6			1									1			
Luverne	2,223	2,540	3											2				
Madison	1,336	1,811	1															
Mankato	10,559	10,365	10													1		1
Marshall	2,088	2,152	4												1			
Melrose	2,591	2,591	1															
Minneapolis	202,718	301,408	313	30	4	22	14				1			6	20			24
Montevideo	2,146	3,056	2													1		1
Montgomery	979	1,267	2															1
Moorhead	3,730	4,840	6	1												2		1
Morris	1,934	1,685	0															1
New Prague	1,228	1,554	1															
New Ulm	5,403	5,648	7				1									1		
Northfield	3,210	3,215	1															
Ortonville	1,247	1,774	1															
Owatonna	5,561	5,658	5		1													
Pipestone	2,536	2,475	1															
Red Lake Falls	1,666	1,666	1															1
Red Wing	7,525	9,048	8				1									1		2
Redwood Falls	1,661	1,666	3															1
Renville	1,075	1,182	0															
Rochester	6,843	7,844	36		3	3										5		
Rushford	1,100	1,011	1													1		
St. Charles	1,304	1,159	3													1		
St. Cloud	8,663	10,600	24			4		1							3	3		2
St. James	2,102	2,102	3															
St. Paul	163,632	214,744	176	14	3	12	3	1						5	7	15		21
St. Peter	4,302	4,176	1															
Sauk Centre	2,154	2,154	6	1												1		
Shakopee	2,046	2,302	5	1														
Sleepy Eye	2,046	2,247	3															
South St. Paul	2,322	4,510	4					1								1		
Staples	1,504	2,558	1	1														
Stillwater	12,318	10,198	11	1		1												
Thief River Falls	1,819	3,174	2												1			
Tower	1,111	1,111	1												1			
Tracy	1,911	1,826	2															
Two Harbors	3,278	4,990	3															1
Virginia	2,962	10,473	14	2		2										1		1
Wabasha	2,622	2,622	5	1														2
Warren	1,276	1,613	2															
Waseca	3,103	3,054	2	1														
Waterville	1,260	1,273	2			1												
West St. Paul	1,830	2,660	1			1												
Willmar	3,409	4,135	8	1														1
Winona	19,714	18,583	25	4		1	1								2	3		1
Winthrop	813	1,043	0															
Worthington	2,386	2,386	2			1										1		

## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	0															
Aitkin	1,719	1,633	2															
Akeley			0															
Appleton	1,184	1,221	0															
Belle Plaine	1,121	1,204	0															
Biwabik		1,690	1															
Bovey		1,377	3															
Browns Valley	721	1,058	1															
Buffalo	1,040	1,227	0															
Caledonia	1,175	1,372	0															
Cass Lake	546	2,011	8	1			1	3										1
Chisholm		7,684	11	1			3									2		1
Coleraine		1,613	0															
Delano	967	1,031	0															
Farmington	733	1,024	0															
Fosston	864	1,055	1															
Frazee	1,000	1,645	0															
Grand Rapids	1,428	2,239	4															
Hibbing	2,481	8,832	9					2										
Jackson	1,756	1,907	0															
Janesville	1,254	1,173	0															
Kenyon	1,202	1,237	1															
Lake Crystal	1,215	1,038	1															
Litchfield	2,280	2,333	4														2	
Long Prairie	1,385	1,250	0															
Madelia	1,272	1,273	1	1														
Milaca	1,204	1,102	1															
Mountain Lake	959	1,081	3													1	1	
Nashwauk		2,080	2															1
North Mankato	939	1,279	0															
North St. Paul	1,110	1,404	4	1														
Osakis	917	1,013	1															
Park Rapids	1,313	1,850	3															1
Pelican Rapids	1,033	1,019	0															
Perham	1,182	1,376	3	1	1													1
Pine City	993	1,258	0															
Plainview	1,038	1,175	0															
Preston	1,278	1,193	2	1														
Princeton	1,319	1,555	2															
St. Louis Park	1,325	1,743	0															
Sandstone	1,189	1,818	1															
Sauk Rapids	1,391	1,745	1															
South Stillwater	1,422	1,343	2	1												1		
Springfield	1,511	1,482	0															
Spring Valley	1,770	1,817	0															
Wadena	1,520	1,820	4															
Wells	2,017	1,755	2															
West Minneapolis	2,250	3,022	2					1										1
Whipston	1,132	1,300	2															
White Bear Lake	1,285	1,505	0															
Windom	1,944	1,749	3															1
Winnebago City	1,816	2,555	2		1	1												
Zumbrota	1,119	1,138	1															

## STATE INSTITUTIONS

Anoka, Asylum	2		1															
Faribault, School for Blind	0																	
Faribault, School for Deaf	0																	
Faribault, School for Feeble Minded	7		1		1									1				
Fergus Falls, Hospital for Insane	7		1	1														
Hastings, Asylum	2																	
Minneapolis, Soldiers' Home	3				1													1
Owatonna, School for Dependents	2				2													
Red Wing, State Training School	0																	
Rochester, Hospital for Insane	8		1															
Sauk Centre, Home School for Girls	0																	
St. Peter, Hospital for Insane	7				1													
St. Cloud, State Reformatory	0																	
Stillwater, State Prison	0																	

## OTHER PARTS OF STATE

617	38	13	28	3	1				6	1	1	9	46	48	1	64
Total for state	1635	113	31	95	32	5	0		7	1	1	33	104	130	1	149

\*No report received. Registrar not doing his duty.

119 stillbirths not included in above totals.

# *Some Medical Book Bargains*

	REGULAR PRICE	OUR PRICE
JOHNSTON—Nervous System . . . . .	\$3.00	\$1.50
DANCE—Nervous Psychiatry . . . . .	5.00	2.50
TYSON—Physical Diagnosis . . . . .	1.50	.75
HALIBURTON—Essentials of Chem. Phy. . . . .	1.50	.75
BLAND-SUTTON—Tumors . . . . .	5.00	2.50
LEXER-BEVAN—Surgery . . . . .	6.00	3.00
WHARTON—Minor Surgery . . . . .	3.00	1.50
ZIEGLER—Pathology . . . . .	5.50	2.75
BARKER—Laboratory Manual of Anatomy . . . . .	5.00	2.75
HEISLER—Practical Anatomy and Guide to Dissecting Human Body . . . . .	4.50	2.25
CROFTON—Chemical Urology . . . . .	2.50	1.25
McLACHLAN—Applied Anatomy, Surgical, Medical, Operative (2 Vols.) . . . . .	6.00	3.00
STRUMPELL—Text Book of Medicine . . . . .	6.00	4.00
TRYSON—Practice of Medicine . . . . .	5.50	3.00
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We shall not go into a lengthy description of this apparatus. It is sufficient to say that its use in many hospitals throughout the country, and in the Army, Navy, and Reclamation Service of the United States Government, proves its value. It should be in every hospital in the land, and in every village, that the unnecessary loss of lives that may be thus saved, should be stopped.

It is made by the Life-Saving Device Co., Chicago.

# THE JOURNAL- LANCET

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No. 3

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FEBRUARY, 1915

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Regular meetings, last Monday in January, April, July, and October

Annual meeting in January

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Wilkin, Otter Tail, Douglas, and Grant Counties

Regular meetings, second Wednesday in January, April, July, and October

Annual meeting in January

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Haugen, G. T.....Battle Lake  
Hengstler, W. H.....Osakis  
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Regular meetings, third Tuesday in March, June, September, and December

Annual meeting in December

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SECRETARY  
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Arneson, Thomas.....Climax  
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Bowers, J. T.....Gully  
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Haugseth, Enoch.....Twin Valley  
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Nelson, H. E.....Crookston  
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Wilkinson, J. C.....Red Lake Falls  
Wood, J. R.....Hallock

#### West Central Minnesota Medical Society

Pope, Stevens, Traverse, and Big Stone Counties

Regular meetings, January, April, July and October

Annual meeting in January

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SECRETARY  
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COUNCILOR, J. G. MILLSPAUGH.....Little Falls

## Aitkin County Medical Society

Regular meetings, first Monday in each month

Annual meeting in December

## PRESIDENT

Graves, Carlton .....Aitkin

## SECRETARY

Ratcliffe, J. J.....Aitkin

Catlin, T. J.....Palisade

Kelly, B. W.....Aitkin

## Upper Mississippi Medical Society

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Regular meetings, January, April, July and October

Annual meeting in January

## PRESIDENT

.....

## SECRETARY

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Coulter, Charles F.....Wadena  
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 Millspaugh, J. G.....Little Falls

Monahan, T. H.....Crosby  
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## Ramsey County Medical Society

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Annual meeting in January

## PRESIDENT

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## SECRETARY

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 Turnaclair, D. D. .... St. Paul  
 Van Slyke, Charles A. .... St. Paul  
 Vercellini, G. .... St. Paul  
 Wald, Rudolph H. .... Hastings  
 Walsh, E. F. .... St. Paul  
 Warner, E. F. .... St. Paul  
 Warren, Edmund L. .... St. Paul  
 Welch, M. C. .... St. Paul  
 Wells, E. E. .... Stillwater  
 Whitacre, J. C. .... St. Paul  
 Whitcomb, E. H. .... St. Paul  
 White, J. S. .... St. Paul  
 Whitney, A. W. .... St. Paul  
 Williams, C. .... St. Paul  
 Winnick, J. B. .... St. Paul  
 Zander, C. H. .... St. Paul  
 Zaun, J. J. .... St. Paul  
 Zimmerman, H. B. .... St. Paul

#### Chisago-Pine County Medical Society

Regular meetings in January and July

Annual meeting in July

**PRESIDENT**  
 Murdock, H. G. .... Taylor's Falls  
**SECRETARY**  
 Anderson, C. A. .... Rush City  
 Dredge, H. P. .... Sandstone

Ehmke, W. C. .... Willow River  
 Fenger, P. N. .... Askon  
 Gray, C. E. .... Rush City  
 Gunz, A. N. .... Centre City  
 Kelsey, C. G. .... Hinckley

Lindberg, A. C. .... North Branch  
 Stowe, A. J. .... Rush City  
 Werner, O. S. .... Lindstrom  
 Wiseman, R. L. .... Pine City  
 Zeien, Thos. .... North Branch

#### Central Minnesota District Medical Society

Mille Lacs, Isanti, Sherburne, and Kanabec Counties

Regular meetings, January, April, July, and October

Annual meeting in July

**PRESIDENT**  
 Olsen, S. H. .... Milaca  
**SECRETARY**  
 Parsons, George E. .... Elk River

Cooney, H. C. .... Princeton  
 Garand, J. H. .... Dayton  
 Nelson, M. S. .... Spring Grove  
 Painter, J. Carl. .... Mora  
 Roadman, Ira M. .... Onamia

Shulean, Nellie. .... Cambridge  
 Swenson, Charles. .... Braham  
 Vrooman, F. E. .... St. Francis  
 Whittier, R. W. .... Mora

#### Carlton County Medical Society

Regular meetings, first Monday in the month

Annual meeting December twenty-ninth

**PRESIDENT**  
 Havens, J. G. W. .... Cloquet  
**SECRETARY**  
 Barclay, A. .... Cloquet

Brunelle, A. M. .... Cloquet  
 Fleming, James. .... Cloquet  
 Miller, Henrietta P. .... Cloquet

Raiter, Franklin. .... Cloquet  
 Shannon, Sylvester. .... Barnum  
 Walters, Franklin R. .... Moose Lake  
 Watkins, S. O. .... Carlton

#### St. Louis County Medical Society

St. Louis, Cook, Lake and Itasca Counties

Regular meetings, second Thursday of each month

Annual meeting in October

**PRESIDENT**  
 Schulze, Albert G. .... Duluth  
**SECRETARY**  
 Barney, Leon A. .... Duluth  
 Abbott, Wm. P. .... Duluth  
 Anderson, L. N. .... Duluth  
 Barry, L. W. .... Duluth  
 Berquist, K. E. .... Duluth  
 Boyer, S. H. .... Duluth  
 Braden, A. J. .... Duluth  
 Bray, C. W. .... Biwabik  
 Budd, J. D. .... Two Harbors  
 Caldwell, J. P. .... Marble

Carstens, C. F. .... Hibbing  
 Chapman, T. L. .... Duluth  
 Clark, C. H. .... Duluth  
 Collins, Arthur N. .... Duluth  
 Collins, Homer C. .... Duluth  
 Coventry, W. A. .... Duluth  
 Crowe, J. H. .... Virginia  
 Drenning, F. C. .... Duluth  
 Ekblad, J. W. .... Duluth  
 Eklund, J. J. .... Duluth  
 Fahy, E. W. .... Duluth  
 Farmer, J. C. .... McKinley  
 Forbes, R. S. .... Duluth  
 Gillespie, N. H. .... Duluth  
 Graham, David. .... Duluth

Graham, R. .... Duluth  
 Grawn, F. A. .... Duluth  
 Greeley, L. Q. .... Duluth  
 Grover, F. C. .... Duluth  
 Haney, C. L. .... Duluth  
 Hirschfield, M. S. .... Duluth  
 Hursh, M. M. .... Grand Rapids  
 Jensen, T. J. .... Duluth  
 Jesion, J. W. .... Duluth  
 Kean, N. D. .... Coleraine  
 Keyes, C. R. .... Duluth  
 Klein, Harry. .... Duluth  
 Knauff, M. K. .... Two Harbors  
 Kraft, Peter. .... Duluth  
 Kuth, Jos. R. .... Duluth



Kurz, John .....Cook  
 Laney, R. L. ....Cusson  
 Lenont, C. B. ....Virginia  
 Lepak, Francis J. ....Duluth  
 Linnemann, N. L. ....Duluth  
 Lum, C. E. ....Duluth  
 McComb, C. F. ....Duluth  
 McCoy, Mary K. ....Duluth  
 McCuen, J. A. ....Duluth  
 McDonald, A. L. ....Duluth  
 McIntyre, E. H. ....Virginia  
 Magie, W. H. ....Duluth  
 Manley, J. R. ....Duluth

Martin, T. R. ....Duluth  
 Michelson, H. E. ....Virginia  
 More, C. W. ....Eveleth  
 Murphy, Ignatius J. ....Duluth  
 Pare, L. T. ....Duluth  
 Patton, F. J. ....Duluth  
 Payette, C. H. ....Duluth  
 Prudden, C. E. ....Duluth  
 Rood, D. C. ....Hibbing  
 Rowe, O. W. ....Duluth  
 Salter, W. H. ....Duluth  
 Schroeder, Charles H. ....Duluth  
 Schwartz, A. H. ....Duluth

Seashore, D. E. ....Duluth  
 Shapiro, E. Z. ....Duluth  
 Stewart, C. A. ....Duluth  
 Sukeforth, L. A. ....Duluth  
 Taylor, C. W. ....Duluth  
 Tilderquist, D. L. ....Duluth  
 Tufty, J. M. O. ....Duluth  
 Tuohy, E. L. ....Duluth  
 Turnbull, F. M. ....Duluth  
 Vercellini, C. E. ....Duluth  
 Walker, A. E. ....Duluth  
 Webster, H. E. ....Duluth  
 Winter, John A. ....Duluth

## FOURTH DISTRICT

COUNCILOR, C. H. BRADLEY.....Minneapolis

## Hennepin County Medical Society

Regular meetings, first Monday in each month, except June, July, and August

Annual meeting in January

## PRESIDENT

McCullom, C. A. ....Minneapolis

## SECRETARY

Maxeiner, Stanley R. ....Minneapolis

Abbott, A. W. ....Minneapolis  
 Adair, F. L. ....Minneapolis  
 Aldrich, A. G. ....Minneapolis  
 Ailing, C. P. ....Minneapolis  
 Allen, H. W. ....Minneapolis  
 Anderson, A. E. ....Minneapolis  
 Anderson, J. D. ....Minneapolis  
 Arey, H. C. ....Excelsior  
 Aune, Martin. ....Minneapolis  
 Aurand, W. H. ....Minneapolis  
 Aurness, P. A. ....Minneapolis  
 Austin, Edward E. ....Minneapolis  
 Avery, J. Fowler. ....Minneapolis  
 Aylmer, A. L. ....Minneapolis  
 Baler, Florence C. ....Minneapolis  
 Baker, E. L. ....Minneapolis  
 Baker, Looe. ....Minneapolis  
 Bakke, O. H. ....Minneapolis  
 Baldwin, L. B. ....Minneapolis  
 Balber, J. P. ....Minneapolis  
 Bass, G. W. ....Minneapolis  
 Baxter, S. H. ....Minneapolis  
 Bell, J. W. ....Minneapolis  
 Benedict, E. E. ....Minneapolis  
 Benjamin, A. E. ....Minneapolis  
 Benn, F. G. ....Minneapolis  
 Benson, G. E. ....Minneapolis  
 Benson, Iver S. ....Minneapolis  
 Bessesen, A. N. ....Minneapolis  
 Bissell, Frank S. ....Minneapolis  
 Blake, James. ....Hopkins  
 Blomburgh, A. F. ....Minneapolis  
 Bockman, M. ....Minneapolis  
 Booth, A. E. ....Minneapolis  
 Booren, Clifton A. ....Minneapolis  
 Bouman, H. A. ....Minneapolis  
 Bracken, H. M. ....Minneapolis  
 Bradley, C. H. ....Minneapolis  
 Brede, W. G. ....Minneapolis  
 Brooks, Charles N. ....Minneapolis  
 Brown, E. D. ....Minneapolis  
 Brown, E. J. ....Minneapolis  
 Brown, Paul F. ....Minneapolis  
 Brown, R. S. ....Minneapolis  
 Burfield, G. H. ....Afton  
 Burns, H. A. ....Minneapolis  
 Butler, John. ....Minneapolis  
 Byrnes, W. J. ....Minneapolis  
 Campbell, R. A. ....Minneapolis  
 Canfield, H. E. ....Minneapolis  
 Carlaw, C. M. ....Minneapolis  
 Cary, H. E. ....Minneapolis  
 Cates, A. B. ....Minneapolis  
 Cavanor, F. T. ....Minneapolis  
 Chapman, O. S. ....Minneapolis  
 Cirkler, A. A. ....Minneapolis  
 Clark, H. S. ....Minneapolis  
 Cohen, H. A. ....Minneapolis  
 Collins, Herbert O. ....Minneapolis  
 Cook, Henry W. ....Minneapolis  
 Corbett, J. F. ....Minneapolis  
 Cosman, E. O. ....Minneapolis  
 Cowles, D. C. ....Minneapolis  
 Crafts, L. M. ....Minneapolis  
 Cranmer, R. R. ....Minneapolis  
 Crosby, J. A. ....Minneapolis  
 Crume, Geo. P. ....Minneapolis  
 Deziel, G. ....Minneapolis  
 Disen, C. F. ....Minneapolis

Donaldson, C. A. ....Minneapolis  
 Drake, C. R. ....Minneapolis  
 Driesbach, N. ....Minneapolis  
 Dunsmoor, F. A. ....Minneapolis  
 Dutton, C. E. ....Minneapolis  
 Egan, John M. ....Minneapolis  
 Eggen, O. K. ....Minneapolis  
 Eitel, Geo. G. ....Minneapolis  
 Engstad, J. E. ....Minneapolis  
 Erb, Frederick A. ....Minneapolis  
 Ericson, J. G. ....Minneapolis  
 Farr, R. E. ....Minneapolis  
 Feidt, W. W. ....Minneapolis  
 Fifield, Emily W. ....Minneapolis  
 FitzGerald, Don F. ....Minneapolis  
 Fleming, A. S. ....Minneapolis  
 Fox, Jno. M. ....Minneapolis  
 Franzen, H. G. ....Minneapolis  
 Fryberger, Wm. O. ....Minneapolis  
 Gardner, E. L. ....Minneapolis  
 Geist, Emil S. ....Minneapolis  
 George, J. W. ....Minneapolis  
 Gilkey, S. E. ....Watson  
 Gordon, G. J. ....Minneapolis  
 Gould, J. B. ....Minneapolis  
 Green, E. K. ....Minneapolis  
 Groll, S. ....Minneapolis  
 Guilford, H. M. ....Minneapolis  
 Gunderson, H. J. ....Minneapolis  
 Hacking, F. H. ....Minneapolis  
 Hagen, G. L. ....Minneapolis  
 Haggard, G. D. ....Minneapolis  
 Hall, Pearl M. ....Minneapolis  
 Hall, W. A. ....Minneapolis  
 Hamilton, A. S. ....Minneapolis  
 Hare, E. R. ....Minneapolis  
 Harrah, J. W. ....Minneapolis  
 Harrington, C. D. ....Minneapolis  
 Hartzell, Thos. B. ....Minneapolis  
 Haverfield, Addie R. ....Minneapolis  
 Haynes, F. E. ....Minneapolis  
 Head, Geo. D. ....Minneapolis  
 Hedback, A. E. ....Minneapolis  
 Helk, H. H. ....Minneapolis  
 Henry, C. E. ....Minneapolis  
 Higbee, Paul A. ....Minneapolis  
 Higgins, J. H. ....Minneapolis  
 Hill, Eleanor J. ....Minneapolis  
 Hill, R. J. ....Minneapolis  
 Hirschfield, Adolph. ....Minneapolis  
 Hobbs, C. A. ....Minneapolis  
 Hodge, S. V. ....Minneapolis  
 Hcegh, Knut. ....Minneapolis  
 Horning, D. W. ....Minneapolis  
 Huenekens, E. J. ....Minneapolis  
 Hvostlef, Jakob. ....Minneapolis  
 Hynes, James. ....Minneapolis  
 Hynes, J. E. ....Minneapolis  
 Irvine, H. G. ....Minneapolis  
 Irwin, A. F. ....Cleveland, Ohio  
 Jensen, M. J. ....Minneapolis  
 Johann, Albert E. ....Minneapolis  
 Johnson, A. E. ....Minneapolis  
 Johnson, H. Amanda. ....  
 ....White Salmon, Wash.  
 Johnson, Julius. ....Minneapolis  
 Johnson, Nimrod A. ....Minneapolis  
 Jones, Herbert W. ....Minneapolis  
 Jones, W. A. ....Minneapolis  
 Kavanagh, K. S. ....Minneapolis  
 Keats, Julia M. Jacobson. ....  
 ....Antelope, Mont.  
 Kelly, E. S. ....Minneapolis  
 Kennedy, Jane F. ....Minneapolis  
 Kerrick, Stanley E. ....Minneapolis

Kimball, H. H. ....Minneapolis  
 King, E. A. ....Minneapolis  
 Kisler, C. M. ....Minneapolis  
 Kistler, J. M. ....Minneapolis  
 Knight, H. L. ....Minneapolis  
 Knight, R. R. ....Minneapolis  
 Kohler, Geo. A. ....Minneapolis  
 Koller, L. R. ....Minneapolis  
 Kriedt, Dan'l. ....Minneapolis  
 Lajoie, J. M. ....Minneapolis  
 Lajpierre, C. A. ....Minneapolis  
 Laurent, A. A. ....Minneapolis  
 La Vake, R. T. ....Minneapolis  
 Law, A. A. ....Minneapolis  
 Laws, C. H. ....Boston, Mass.  
 Leavitt, H. H. ....Minneapolis  
 Leland, M. N. ....Minneapolis  
 Lewis, J. D. ....Minneapolis  
 Lind, A. ....Minneapolis  
 Lind, C. J. ....Minneapolis  
 Linner, H. P. ....Minneapolis  
 Little, J. W. ....Minneapolis  
 Litzenberg, J. C. ....Minneapolis  
 Loberg, A. E. ....Minneapolis  
 Long, Jesse. ....Minneapolis  
 Lynch, M. J. ....Minneapolis  
 MacDonald, D. A. ....Minneapolis  
 MacDonald, I. C. ....Minneapolis  
 McDaniel, Orianna. ....Minneapolis  
 McDermott, T. E. ....Minneapolis  
 McDonald, H. N. ....Minneapolis  
 McEachran, A. ....Minneapolis  
 McIntyre, Geo. ....Minneapolis  
 McLaughlin, J. A. ....Minneapolis  
 Macnie, J. S. ....Minneapolis  
 Mann, A. T. ....Minneapolis  
 Marcle, W. J. ....Minneapolis  
 Mark, D. B. ....Minneapolis  
 May, W. H. ....Minneapolis  
 Mead, Marion A. ....Minneapolis  
 Meyer, E. L. ....Minneapolis  
 Miller, Hugo H. ....Harvey, N. D.  
 Moir, Wm. W. ....Minneapolis  
 Monahan, J. A. ....Minneapolis  
 Moore, J. E. ....Minneapolis  
 Moorehead, Martha B. ....Minneapolis  
 Moren, E. ....Minneapolis  
 Morris, Minor. ....Hopkins  
 Morrison, A. W. ....Minneapolis  
 Morse, John H. ....Minneapolis  
 Morton, H. McI. ....Minneapolis  
 Mullin, R. H. ....Minneapolis  
 Murdock, A. J. ....Minneapolis  
 Murphy, W. B. ....Minneapolis  
 Murray, Wm. R. ....Minneapolis  
 Nelson, C. P. ....Minneapolis  
 Nelson, H. S. ....Minneapolis  
 Newhart, Horace. ....Minneapolis  
 Newkirk, H. D. ....Minneapolis  
 Nickerson, M. L. ....Minneapolis  
 Nippert, L. A. ....Minneapolis  
 Nissen, Henrik. ....Minneapolis  
 Nootnagel, C. F. ....Minneapolis  
 Nordland, Martin. ....Robbinsdale  
 Norred, C. H. ....Minneapolis  
 Oberg, C. M. ....Minneapolis  
 O'Donnell, J. E. ....Minneapolis  
 Olson, G. M. ....Minneapolis  
 Olson, Olaf A. ....Minneapolis  
 Orton, H. N. ....Minneapolis  
 Owre, Oscar. ....Minneapolis  
 Parker, E. H. ....Minneapolis  
 Parks, Albert H. ....Minneapolis  
 Paulson, E. L. ....Minneapolis  
 Pederson, R. M. ....Minneapolis



Peppard, F. A. .... Minneapolis  
 Peters, R. M. .... Minneapolis  
 Peterson, J. R. .... Minneapolis  
 Pettit, C. W. .... Minneapolis  
 Pineo, W. B. .... Minneapolis  
 Plehn, J. F. .... Minneapolis  
 Plonske, C. J. .... Minneapolis  
 Poebler, F. T. .... Minneapolis  
 Poppe, Fred H. .... Minneapolis  
 Pratt, F. J. .... Minneapolis  
 Prim, J. A. .... Minneapolis  
 Quinby, Thos. F. .... Minneapolis  
 Quist, Henry W. .... Minneapolis  
 Reed, Chas. A. .... Minneapolis  
 Rees, S. P. .... Minneapolis  
 Rexford, L. A. .... Minneapolis  
 Reynolds, J. S. .... Minneapolis  
 Ringnell, C. J. .... Minneapolis  
 Rishmiller, J. H. .... Minneapolis  
 Roan, Carl M. .... Minneapolis  
 Roberts, Thos. S. .... Minneapolis  
 Roberts, W. B. .... Minneapolis  
 Robertson, H. E. .... Minneapolis  
 Robitshek, E. C. .... Minneapolis  
 Rochford, W. E. .... Minneapolis  
 Rodda, F. C. .... Minneapolis  
 Rodgers, C. L. .... Minneapolis  
 Rosen, Samuel .... Minneapolis  
 Rutledge, J. W. .... Minneapolis  
 Sanford, J. A. .... Farmington  
 Schefcik, J. F. .... Minneapolis  
 Schjelderup, N. H. .... Minneapolis  
 Schlutz, F. W. .... Minneapolis  
 Schmidt, Karl H. .... Minneapolis

Schulze, Geo. .... Minneapolis  
 Schwyzer, G. .... Minneapolis  
 Seashore, Gilbert .... Minneapolis  
 Sedgwick, J. P. .... Minneapolis  
 Seeger, S. J. .... Minneapolis  
 Simons, Jaimar .... Minneapolis  
 Simpson, J. D. .... Minneapolis  
 Svertsen, Ivar .... Minneapolis  
 Slocumb, Maude S. .... Minneapolis  
 Smith, Arthur E. .... Minneapolis  
 Smith, D. Edmund .... Minneapolis  
 Smith, Norman M. .... Minneapolis  
 Soderlind, A. .... Minneapolis  
 Spratt, C. N. .... Minneapolis  
 Staples, H. L. .... Minneapolis  
 Strachauer, Arthur C. .... Minneapolis  
 Strout, E. S. .... Minneapolis  
 Stuart, J. H. .... Minneapolis  
 Sweetser, H. B. .... Minneapolis  
 Sweitzer, S. E. .... Minneapolis  
 Taft, J. O. .... Minneapolis  
 Taft, Walter L. .... Minneapolis  
 Talbot, Ada E. .... Minneapolis  
 Ten Broeck, Lewis L. .... Minneapolis  
 Tennyson, Theodore .... Minneapolis  
 Thomas, David O. .... Minneapolis  
 Thomas, Geo. E. .... Minneapolis  
 Thomas, G. H. .... Minneapolis  
 Thompson, H. H. .... Minneapolis  
 Tibbetts, J. I. .... Minneapolis  
 Tingdale, A. C. .... Minneapolis  
 Todd, F. C. .... Minneapolis  
 Towers, F. E. .... Minneapolis  
 Tunstead, Hugh .... Minneapolis

Tyrrell, C. C. .... Minneapolis  
 Ulrich, Henry L. .... Minneapolis  
 Ulrich, Mabel S. .... Minneapolis  
 Van Deboget, Lewis .... Minneapolis  
 Voyer, Emile O. .... Minneapolis  
 Vanous, E. Z. .... Minneapolis  
 Warham, Thos. T. .... Minneapolis  
 Watson, C. W. .... Minneapolis  
 Watson, J. A. .... Minneapolis  
 Watson, John .... St. Louis Park  
 Westbrook, F. F. .... Vancouver, B. C.  
 Weston, C. G. .... Minneapolis  
 Wethall, A. G. .... Minneapolis  
 Wheat, F. C. .... Minneapolis  
 Whetstone, Mary S. .... Minneapolis  
 Whipple, C. D. .... Minneapolis  
 White, S. Marx .... Minneapolis  
 Wilcox, Archa E. .... Minneapolis  
 Wilcox, M. Russell .... Minneapolis  
 Willcut, C. E. .... Minneapolis  
 Williams, C. W. .... Minneapolis  
 Williams, H. L. .... Minneapolis  
 Williams, Robert .... Minneapolis  
 Williams, U. G. .... Minneapolis  
 Willson, Hugh S. .... Minneapolis  
 Witham, C. A. .... Minneapolis  
 Wood, Douglas F. .... Minneapolis  
 Woodard, F. R. .... Minneapolis  
 Woodworth, Elizabeth. .... Minneapolis  
 Wright, C. B. .... Minneapolis  
 Wright, C. D. .... Minneapolis  
 Wright, F. R. .... Minneapolis  
 Wright, Swan G. .... Minneapolis  
 Yoerg, O. W. .... Minneapolis

#### Meeker County Medical Society

Regular meetings, first Tuesday of March, June, September, and December

Annual meeting in December

PRESIDENT  
 Robertson, W. P. .... Litchfield  
 SECRETARY  
 Danielson, Karl A. .... Litchfield

Brigham, F. T. .... Watkins  
 Chapman, W. E. .... Litchfield  
 Cutts, G. A. C. .... Grove City  
 Donovan, J. J. .... Litchfield

O'Connor, D. C. .... Eden Valley  
 Peterson, A. C. .... Dassel  
 Peterson, George E. .... Dassel  
 Robertson, Archibald W. .... Litchfield

#### Wright County Medical Society

Regular meetings, first Monday in January, April, July, and October

Annual meeting in October

PRESIDENT  
 Hawkins, E. P. .... Montrose  
 SECRETARY  
 Catlin, John J. .... Buffalo

Hill, A. L. .... Monticello  
 Jellison, E. R. .... Cokato  
 Kiesling, I. H. .... Rockford  
 Metcalf, J. N. .... Monticello  
 Moffatt, A. G. .... Howard Lake  
 O'Hair, P. .... Waverly

Ridgway, A. M. .... Annandale  
 Rousseau, Victor .... Maple Lake  
 Shrader, E. E. .... Watertown  
 Warner, E. A. .... Waverly  
 Weum, T. W. .... South Haven

#### Stearns-Benton County Medical Society

Regular meetings, third Thursday in January, April, July, and October

Annual meeting April fifteenth

PRESIDENT  
 Sherwood, Geo. E. .... Kimball  
 SECRETARY  
 Boehm, J. C. .... St. Cloud  
 Arndt, H. W. .... Paynesville  
 Beaty, J. H. .... St. Cloud  
 Beebe, W. L. .... St. Cloud  
 Brigham, Charles F. .... St. Cloud  
 DuBois, Julian A. .... Sauk Center  
 Eckstein, Arthur W. .... Holdingford  
 Edmunds, I. L. .... Clearwater  
 Friesleben, William .... Sauk Rapids

Gaag, E. W. .... Browerville  
 Gelz, John J. .... Richmond  
 Glycer, R. T. .... Broton  
 Goehrs, H. W. .... Melrose  
 Green, E. F. .... St. Cloud  
 Gulde, W. C. .... St. Cloud  
 Hilbert, Pierre A. .... Melrose  
 Hitchings, Wm. S. .... Belgrade  
 Holdridge, Geo. A. .... Foley  
 Kirghis, A. J. .... St. Cloud  
 Kolset, Carl D. .... Broton  
 Kuhlmann, August .... Melrose  
 Lamb, Harold L. .... Sauk Center  
 Lewis, C. B. .... St. Cloud  
 Lewis, Edwin J. .... Sauk Center

May, C. E. .... Minneapolis  
 McDowell, J. P. .... Sauk Rapids  
 Moynihan, A. F. .... Sauk Center  
 Pilon, Pierre C. .... Paynesville  
 Putney, George E. .... Paynesville  
 Rathbun, A. M. .... Rice  
 Ridgway, Alex. .... Belgrade  
 Stangl, P. E. .... St. Cloud  
 Sutton, C. S. .... St. Cloud  
 Sutton, H. E. .... Cold Spring  
 Trace, O. C. .... Clear Lake  
 Watson, Tolbert. .... Albany  
 Whiting, A. D. .... St. Cloud  
 Wolner, O. H. .... Elba

#### Kandiyohi-Swift County Medical Society

Regular meetings, first Thursday in June and December, and two others on

call of the President and the Secretary

Annual meeting the first Thursday in December

PRESIDENT  
 Little, De Willis .... Appleton  
 SECRETARY  
 Jacobs, J. C. .... Willmar  
 Branton, B. J. .... Willmar  
 Coleman, F. B. .... Willmar  
 Daignault, Oscar .... Benson

Freshaug, S. J. .... Benson  
 Frost, E. H. .... Willmar  
 Hansen, Henry V. .... New London  
 Johnson, Christian .... Willmar  
 Johnson, Hans .... Kerkhoven  
 Johnston, E. B. .... Benson  
 Kaufman, Wm. C. .... Appleton

McMahon, D. J. .... Raymond  
 Murphy, G. D. .... Murdock  
 Oppegard, M. O. .... New London  
 Peterson, August J. .... Spicer  
 Rains, John M. .... Willmar  
 Scofield, C. L. .... Benson  
 Shelver, H. J. .... Appleton

## FIFTH DISTRICT

COUNCILOR, H. M. WORKMAN..... ..Tracy

## Camp Release District Medical Society

Renville, Chippewa, Lac qui Parle, Yellow Medicine, and Sibley Counties

Regular meetings, third Thursday in January, April, July, and October

Annual meeting in October

## PRESIDENT

Clay, E. M.....Renville

## SECRETARY

Kerns, H. ....Granite Falls

Adams, R. C.....Bird Island  
 Aldrich, F. H.....Belview  
 Bacon, R. S.....Montevideo  
 Beck, W. M.....Clarkfield  
 Bergh, L. N.....Montevideo  
 Burns, F. W.....Montevideo  
 Burns, M. A.....Milan  
 Bushey, M. E.....Arlington  
 Cole, H. B.....Franklin  
 Cressy, F. J.....Granite Falls

Duclos, J. A.....Henderson  
 Duncan, H. ....Marietta  
 Ferguson, James B.....St. Paul  
 Flinn, Thos. E.....Redwood Falls  
 Flower, Ward Z.....Gibbon  
 Gammell, H. W.....Madison  
 Gierke, E. O.....Watertown, S. D.  
 Hammerstrand, F. L.....  
 ..... Sacred Heart  
 Hauge, M. M.....Clarkfield  
 Helland, J. W.....Maynard  
 Holmberg, L. J.....Canby  
 Johnson, A. E.....Watertown, S. D.  
 Johnson, Carl M.....Montevideo  
 Johnson, H. M.....Dawson  
 Jones, D. N.....Minneapolis  
 Kanne, C. W.....Arlington

Kilbride, J. S. ..Watertown, S. D.  
 Koren, F. ....Watertown, S. D.  
 Lima, L. ....Montevideo  
 Marken, M. H.....Boyd  
 Mesker, G. H. ....Olivia  
 Nelson, N. A.....Dawson  
 Passer, A. A.....Olivia  
 Pease, G. R.....Redwood Falls  
 Penhall, F. W.....Morton  
 Peterson, T. ....Gaylord  
 Puffer, F. L.....Bird Island  
 Schneider, J. P.....Minneapolis  
 Stemsrud, A. A.....Dawson  
 Strout, G. E.....Winthrop  
 Walker, G. H.....Fairfax  
 Zimbeck, R. D. ....Montevideo

## Brown-Redwood County Medical Society

Regular meetings, January and June

Annual meeting in January

## PRESIDENT

Piper, M. C.....Sanborn

## SECRETARY

Reineke, G. F.....New Ulm

Adams, J. L. ....Morgan  
 Brand, W. A.....Redwood Falls  
 Fritsche, L. A.....New Ulm  
 Gleysteen, D.....Lamberton

Gray, F. D.....Marshall  
 Herron, D. A.....Comfrey  
 Jamieson, Earl ..Walnut Grove  
 Kiefer, M. A.....Sleepy Eye  
 Kusske, A. L.....Hutchinson  
 Meierding, W. A.....Springfield  
 Peterson, R. A.....Vesta  
 Ravn, Bjarne.....Milroy  
 Rothenburg, J. C.....Springfield

Schoch, J. L.....New Ulm  
 Seifert, O. J.....New Ulm  
 Shrader, J. S.....Springfield  
 Strickler, O. C.....New Ulm  
 Sundt, Mathias ..Hanska  
 Vogel, J. H.....New Ulm  
 Walker, C. C.....Lamberton  
 Weiser, G. B.....New Ulm  
 Wellcome, J. W. B....Sleepy Eye

## Lyon-Lincoln County Medical Society

Regular meetings, first Tuesday in February, May, July and October

Annual meeting in February

## PRESIDENT

Persons, C. E.....Marshall

## SECRETARY

Workman, H. M. ....Tracy  
 Akester, Ward.....Marshall  
 Bacon, C. G.....Marshall

Germo, Chas.....Balaton  
 Hard, A. D.....Marshall  
 Hoidale, A. D.....Tracy  
 Jacquot, G. L.....Ivanhoe  
 Jensen, J. C.....Hendricks  
 Paulson, Theo. S.....Tyler  
 Sanderson, Ed. T.....Minneota

Thordarson, Th.....Minneota  
 Vadheim, Alfred L.....Tyler  
 Valentine, W. H.....Tracy  
 Wakefield, Wm.....Lake Benton  
 Williams, H. O.....Balaton  
 Workman, W. G.....Tracy

## SIXTH DISTRICT

COUNCILOR, F. R. WEISER..... ..Windom

## Southwestern Medical Society

Pipestone, Rock, Nobles, Murray, and Cottonwood Counties

Regular meetings, second Thursday in May and November

Annual meeting in November

## PRESIDENT

Williams, Leon A.....Slayton

## SECRETARY

King, Emil .....Fulda  
 Arnold, E. W.....Bigelow  
 Balcom, G. G.....Lake Wilson  
 Bong, J. H.....Jasper  
 Brown, A. H.....Pipestone  
 Cress, P. J.....Ellsworth  
 De Boer, Hermanus...Edgerton  
 Dolan, C. P.....Worthington  
 Doms, H. C.....Slayton  
 Dudley, J. H.....Windom  
 Eaton, W. H.....Adrian

Gerber, Lou M.....Jasper  
 Hart, Bruce D.....Round Lake  
 Hilger, J. M.....Iona  
 Leebens, John H.....Lismore  
 Lowe, Thomas.....Pipestone  
 McKeown, E. G.....Edgerton  
 Manson, F. M.....Worthington  
 May, C. C.....Adrian  
 Miller, Victor I.....Mankato  
 Mork, B. O.....Worthington  
 Patterson, W. E.....Currie  
 Rice, Geo. D.....Paynesville  
 Richardson, W. E.....Slayton  
 Richmond, Chas. D.....Jeffers  
 Schmidt, Geo. F.....Pipestone

Schmidt, H. A.....Westbrook  
 Sherman, C. L.....Luverne  
 Smallwood, J. T. ....Worthington  
 Sogge, L. ....Windom  
 Spalding, A. E.....Luverne  
 Sullivan, M. ....Adrian  
 Taylor, Wm. J.....Pipestone  
 Thorson, E. O.....Luverne  
 Tofte, Josephine B....Pine City  
 Watson, F. G.....Rushmore  
 Weiser, F. R.....Windom  
 Wiedow, Henry.....Worthington  
 Williams, A. B.....Wilmont  
 Wooster, A. M.....Hills  
 Wright, C. O.....Luverne

Blue Earth Valley Medical Society

Faribault and Martin Counties

Regular meetings, last Thursday in May and October  
Annual meeting in October

PRESIDENT  
Chambers, W. C.....Blue Earth  
SECRETARY  
Broberg, J. A. ....Blue Earth  
Barr, W. H.....Wells  
Bickford, H. G....Minnesota Lake  
Blong, P. H.....Elmore

Burton, C. N.....Blue Earth  
Butz, J. A.....Monterey  
Durgin, F. L.....Winnebago  
Gullixson, Andrew.....Bricelyn  
Holm, P. F.....Wells  
Hunt, F. N.....Fairmont  
Hunt, R. C.....Fairmont  
Hunte, A. F.....Truman  
Jacobs, A. C.....Elmore  
Johnson, H. P.....Fairmont

Luedtke, G. H.....Fairmont  
McGroarty, J. J.....Easton  
Mikkelsen, M. ....Wells  
Richardson, W. J.....Fairmont  
Stewart, O. E.....Bricelyn  
Strobel, W. G.....Welcome  
Urstad, O. H.....Kiester  
Vaughan, Geo. E.....Winnebago  
Wilson, C. E.....Blue Earth

Jackson County Medical Society

Regular meetings, second Tuesday in May and November  
Annual meeting in November

PRESIDENT  
Maitland, David P.....Jackson  
SECRETARY  
Moe, Anton J.....Heron Lake

Allen, R. W.....Heron Lake  
Arzt, Herbert L.....Jackson  
Biorn, N. A.....Jackson  
Chadbourne, A. G....Heron Lake  
Leigh, H. J.....Lakefield

Nusbaum, D. H.....Jackson  
Portmann, Wm. C.....Jackson  
Rose, John T.....Lakefield  
Rowe, Arthur N.....Heron Lake  
Searles, Scott .....Lakefield

Watsonwan County Medical Society

Annual meeting, second Wednesday in December  
Regular meetings not fixed

PRESIDENT  
McCarthy, W. J.....Madelia  
SECRETARY  
Haynes, B. H.....St. James

Grimes, H. B.....Madelia  
Hagen, O. E.....Butterfield  
Kabrick, O. A.....Odin

Rowe, W. H.....St. James  
Rowe, W. H., Jr.....St. James  
Thompson, Albert.....St. James

SEVENTH DISTRICT

COUNCILOR, F. A. DODGE.....Le Sueur

Nicollet-Le Sueur County Medical Society

Regular meetings, twice a year  
Annual meeting January fifteenth

PRESIDENT  
Phelps, R.....St. Peter  
SECRETARY  
Strathern, F. P.....St. Peter  
Altken, H. B....Le Sueur Center  
Baskett, Geo. T.....St. Peter

Baskett, L. W.....Stevenson  
Baskett, Olive T.....St. Peter  
Blakely, C. C.....St. Peter  
Covey, Herman W.....St. Peter  
Daniels, J. W.....St. Peter  
Dodge, F. A.....Le Sueur  
Freeman, Geo. H.....Willmar  
Hartung, H. A.....Le Sueur

Le Clerc, Joseph E.....Le Sueur  
McDougald, D. W.....Le Sueur  
McIntyre, G. W.....St. Peter  
Merritt, G. F.....St. Peter  
Olson, R. G.....Nicollet  
Olson, Wm. P.....Gaylord  
Theissen, W. N.....Faribault  
Woodworth, L. F....Le Sueur Center

McLeod County Medical Society

Regular meetings, January, April, June, and October  
Annual meeting in January

PRESIDENT  
.....  
SECRETARY  
Maurer, E. L.....Brownton

Axilrod, D. L.....Hutchinson  
Barrett, E. E.....Glencoe  
Bolles, D. W.....Minneapolis  
Hovorka, T. W. ....Glencoe

Sheppard, Fred.....Hutchinson  
Sheppard, P. E.....Hutchinson  
Tinker, C. W.....Stewart  
Wheeler, M. W.....Glencoe

Scott-Carver County Medical Society

Regular meetings, first Thursday in March, June, September  
Annual meeting in December

PRESIDENT  
Landenberger, John..New Prague  
SECRETARY  
Reiter, H. W.....Shakopee  
Bohland, F. J.....Belle Plaine  
Buck, Fred H.....Shakopee

Cannady, E. E.....Prior Lake  
Fischer, H. P.....Shakopee  
Fischer, P. M.....Shakopee  
Grivelly, Chas. T..Young America  
Grivelly, Hans J.....  
.....Waynesburg, Ky.  
Henricksen, H. G....New Market  
McKeon, James .....Montgomery

Moloney, G. R.....Belle Plaine  
Molzahn, H. E.....St. Paul  
Novak, E. E.....New Prague  
Phillips, Wm. H.....Jordan  
Schneider, H. A.....Jordan  
Soper, J. E.....Norwood  
Westerman, F. C....Montgomery  
White, J. B.....Belle Plaine



**Goodhue County Medical Society**

Regular meetings, first Tuesday after first Monday in January, April, July and October

Annual meeting in January

**PRESIDENT**  
 Claydon, L. E.....Red Wing  
**SECRETARY**  
 McGuigan, H. T.....Red Wing

Aanes, A. M.....Red Wing  
 Conley, A. T.....Cannon Falls  
 Conley, H. E.....Cannon Falls  
 Cremer, M. H.....Red Wing  
 Cremer, P. H.....Hastings  
 Fjelstad, C. A.....Red Wing  
 Gates, C. E.....Goodhue

Gates, J. A.....Kenyon  
 Hankee, P. R.....Cannon Falls  
 Jones, A. W.....Red Wing  
 McKinstry, H. L.....Clinton  
 Sawyer, H. P.....Goodhue  
 Smith, M. W.....Red Wing

**Rice County Medical Society**

Regular meetings, January, April, July, and October

Annual meeting in January

**PRESIDENT**  
 Rogers, A. C.....Faribault

**SECRETARY**  
 Davis, F. U.....Faribault  
 Babcock, F. M.....Northfield  
 Barnard, Elizabeth M. Faribault  
 Finley, W. F.....Lonsdale

Haessley, S. B.....Faribault  
 Hanson, A. M.....Faribault  
 Hunt, W. A.....Northfield  
 Huxley, F. R.....Faribault  
 Lane, Laura A. ....Faribault  
 Lee, W. P.....Northfield  
 Lexa, F. J.....Lonsdale  
 Mayland, M. L.....Faribault  
 Phillips, J. G.....Northfield

Robilliard, Chas. M. Morristown  
 Robilliard, W. H.....Faribault  
 Rumpf, W. H.....Faribault  
 Seeley, I. F.....Northfield  
 Smith, P. A.....Faribault  
 Trowbridge, E. H. ....Faribault  
 Warren, F. S.....Faribault  
 Wilson, W.....Northfield

**Wabasha County Medical Society**

Regular meeting (annually) first Thursday after first Monday in July

**PRESIDENT**  
 Heagerty, W. B.....Mazeppa

**SECRETARY**  
 Wilson, W. F. ....Lake City

Adams, W. T. ....Elgin  
 Bayley, E. H.....Lake City  
 Cochrane, W. J.....Lake City  
 Dempsey, D. P.....Kellogg  
 Fleischhauer, D. S.....Wabasha  
 French, E. A.....Plainview

King, H. V.....Millville  
 Nauth, W. W.....Minneiska  
 Rankin, A. A.....Zumbro Falls  
 Shaughnessy, M. J.....Wabasha  
 Slocumb, J. A.....Plainview

**EIGHTH DISTRICT**

COUNCILOR, HUGH F. MCGAUGHEY.....Winona

**Blue Earth County Medical Society**

Regular meetings, March, June, September, and December

Annual meeting in December

**PRESIDENT**  
 Sohmer, A. E.....Mankato

**SECRETARY**  
 James, J. H.....Mankato  
 Allen, Frank A.....Elysian  
 Andrews, J. W.....Mankato  
 Andrews, Roy N.....Mankato  
 Benham, E. W.....Mankato  
 Curran, G. R.....Mankato

Dahl, G. A. ....Mankato  
 Field, Merton .....Canby  
 Heilscher, Helen Hughes.....Mankato  
 Heilscher, J. A.....Mankato  
 Hering, H. H.....Minneapolis  
 Holbrook, J. S.....Mankato  
 Holman, C. J.....Mankato  
 Kelly, T. C.....Mankato  
 Kemp, A. F.....Mankato  
 Liedloff, A. G.....Mankato

Lloyd, H. J.....Lake Crystal  
 Luck, Hilda.....Mankato  
 McMichael, O. H.....Minneapolis  
 Merrill, J. E.....Amboy  
 Osborn, Lida.....Mankato  
 Pratt, C. C.....Mankato  
 Rosenwald, J. P.....Mankato  
 Schlesselman, J. T. Good Thunder  
 Schmitt, A. F.....Mankato  
 Valin, H. D.....St. Peter

**Dodge County Medical Society**

Regular meetings, January, April, June and October

Annual meeting in June

**PRESIDENT**  
 Way, O. F.....Claremont  
**SECRETARY**  
 Bigelow, Chas. E. Dodge Center

Adams, R. T.....Mantorville  
 Baker, A. L.....Kasson

Belt, W. E.....Dodge Center  
 Clifford, F. F.....West Concord  
 Smith, F. D.....Kasson

**Freeborn County Medical Society**

Regular meetings, February, May, August and November

Annual meeting in May

**PRESIDENT**  
 Von Berg, J. P.....Albert Lea  
**SECRETARY**  
 Stevenson, Robert G...Albert Lea  
 Bessesen, W. A.....Albert Lea

Burton, Oscar A.....Albert Lea  
 Butturff, C. R.....Freeborn  
 Calhoun, Frank W.....Albert Lea  
 Davis, F. W.....Alden  
 Freeman, J. P.....Glenville  
 Gramenz, F.....Albert Lea  
 Kamp, Byron A. ....Albert Lea

Nannestad, J. R.....Albert Lea  
 Palmer, W. L.....Albert Lea  
 Rodli, O. E.....Albert Lea  
 Rudolf, S. F.....Albert Lea  
 Schaaf, F. H. K.....Hartland  
 Schultz, J. A.....Emmons

## THE JOURNAL-LANCET

## Houston-Fillmore County Medical Society

Regular meetings, May and October

## Annual meeting in May

## PRESIDENT

.....  
 FISCHER, O. F. .... Houston  
 BROWNING, W. E. .... Caledonia

## SECRETARY

Eby, Cyrus E. .... Spring Valley  
 Helland, G. M. .... Spring Grove  
 Hvostef, J. C. .... Lanesboro  
 Kibbe, O. A. .... Canton  
 Kierland, P. E. .... Harmony  
 Lannin, J. C. .... Mabel

Love, George A. .... Preston  
 Onsgard, C. K. .... Rushford  
 Onsgard, L. K. .... Houston  
 Utley, J. D. .... Spring Valley  
 Williams, R. V. .... Rushford  
 Woodruff, C. W. .... Chatfield

## Mower County Medical Society

Regular meetings, second Wednesday in January, April, July, and October

## Annual meeting in October

## PRESIDENT

Henslin, A. E. .... LeRoy

## SECRETARY

Allen, C. C. .... Austin

Allen, A. W. .... Austin  
 Baker, G. L. .... Waltham  
 Cobb, W. F. .... Lyle  
 Hart, M. J. .... LeRoy  
 Hegge, C. A. .... Austin  
 Hegge, O. H. .... Austin  
 Leck, Clifford C. .... Austin

Lewis, C. F. .... Austin  
 McBroom, D. E. .... Adams  
 Mitchell, R. S. .... Grand Meadow  
 Peirson, Homer F. .... Austin  
 Rebman, E. C. .... Austin  
 Schottler, G. J. .... Dexter  
 Torkelson, P. T. .... Lyle

## Olmsted County Medical Society

Regular meetings, each alternate month

## Annual meeting in January

## PRESIDENT

Witherstine, H. H. .... Rochester

## SECRETARY

Thomas, G. J. .... Rochester

Adams, A. S. .... Rochester  
 Allen, Wilson A. .... Rochester  
 Archibald, A. .... Rochester  
 Balfour, Donald .... Rochester  
 Beckman, E. H. .... Rochester  
 Berkman, D. M. .... Rochester  
 Braasch, W. F. .... Rochester  
 Crewe, John E. .... Rochester  
 Crispin, E. L. .... Rochester

Eusterman, Geo. .... Rochester  
 Fisher, Carl. .... Rochester  
 Giffin, H. Z. .... Rochester  
 Graham, C. .... Rochester  
 Granger, Gertrude B. .... Rochester  
 Hallenbeck, Dorr F. .... Rochester  
 Henderson, M. S. .... Rochester  
 Heyerdale, O. C. .... Rochester  
 Joyce, Geo. T. .... Rochester  
 Judd, E. S. .... Rochester  
 Kilbourne, A. F. .... Rochester  
 Linton, Laura A. .... Rochester  
 Linton, W. B. .... Rochester  
 Logan, A. H. .... Rochester  
 Matthews, Justus .... Rochester  
 Mayo, C. H. .... Rochester

Mayo, W. J. .... Rochester  
 Mosse, F. R. .... Rochester  
 Mussey, R. D. .... Rochester  
 New, G. B. .... Rochester  
 Plummer, H. S. .... Rochester  
 Plummer, W. A. .... Rochester  
 Pollock, Lee W. .... Rochester  
 Russell, H. R. .... Stewartville  
 Sheldon, W. D. .... Rochester  
 Smith, E. V. .... Rochester  
 Smith, F. L. .... Eyota  
 Stacy, Leda .... Rochester  
 Steven, George .... Byron  
 Wilson, L. B. .... Rochester  
 Wood, Harry Gardner. Rochester

## Steele County Medical Society

Regular meetings, first Tuesday in each month

## Annual meeting in January

## PRESIDENT

Smersh, Francis M. .... Owatonna

## SECRETARY

Stewart, Allan B. .... Owatonna

Adair, John H. .... Owatonna  
 Andrist, J. W. .... Owatonna  
 Dailey, W. J. .... Blooming Prairie  
 Hart, A. B. .... Owatonna

Melby, Benedick. .... Blooming Prairie  
 Morehouse, G. H. .... Owatonna  
 Peterson, Christian .... Owatonna  
 Senn, E. W. .... Owatonna  
 Warren, J. W. .... Minneapolis

## Waseca County Medical Society

Regular meetings, first Monday in January, April, July, and October

## Annual meeting in January

## PRESIDENT

Swartwood, F. A. .... Waseca

## SECRETARY

Rudolf, A. J. .... Waseca

Batchelder, E. J. .... New Richland  
 Blanchard, H. G. .... Waseca  
 Chamberlin, W. A. .... Waseca  
 Cory, Wm. M. .... Waterville  
 Hagen, H. O. .... New Richland

Joyce, T. M. .... Janesville  
 Lynn, J. F. .... Waseca  
 Mellicke, W. A. .... Janesville  
 O'Hara, J. J. .... Janesville  
 Shrodes, G. H. .... Waterville

## Winona County Medical Society

Regular meetings, first Tuesday in January, April, July, and October

## Annual meeting in January

## PRESIDENT

Bear, H. C. .... St. Charles

## SECRETARY

McGaughey, H. F. .... Winona  
 Clay, F. H. .... St. Charles  
 Gates, G. L. .... Winona  
 Heise, W. F. C. .... Winona

Keyes, E. D. .... Winona  
 Leicht, Oswald .... Winona  
 Lester, C. A. .... Winona  
 Lichtenstein, H. M. .... Winona  
 Lindsay, W. V. .... Winona  
 Lynch, Elizabeth .... Winona  
 Lynch, J. L. .... Winona  
 McLaughlin, E. M. .... Winona  
 Muir, Edwin S. .... Winona

Neumann, C. A. .... Lewiston  
 Neumann, W. H. .... Lewiston  
 Pritchard, D. B. .... Winona  
 Robbins, C. P. .... Winona  
 Rollins, F. H. .... St. Charles  
 Rosenberry, B. P. .... Winona  
 Scott, J. W. .... St. Charles  
 Schaefer, S. .... Winona  
 Tweedy, G. J. .... Winona

## ALPHABETICAL ROSTER

Aanes, A. M.	Red Wing	Beadie, W. D.	St. Paul	Burns, R. P.	St. Paul
Aborn, W. H.	Dilworth	Beau, H. C.	St. Charles	Burton, C. N.	Blue Earth
Abbott, A. W.	Minneapolis	Beatty, J. H.	St. Cloud	Burton, Oscar A.	Albert Lea
Abbott, E. J.	St. Paul	Beaudoux, H. A.	St. Paul	Bushey, M. E.	Arlington
Abbott, J. S.	St. Paul	Beck, W. M.	Clarkfield	Butler, John	Minneapolis
Abbott, Wm. P.	Duluth	Beckley, F. L.	St. Paul	Butturff, C. R.	Freeborn
Abramovich, J. H.	St. Paul	Beckman, E. H.	Rochester	Butz, J. A.	Montery
Adair, F. L.	Minneapolis	Beebe, Warren L.	St. Cloud	Byrnes, W. J.	Minneapolis
Adair, John H.	Owatonna	Beise, R. A.	Brainerd		
Adams, A. S.	Rochester	Bell, J. W.	Minneapolis	Caine, C. E.	Morris
Adams, J. L.	Morgan	Belt, W. E.	Dodge Center	Caldwell, J. P.	Marble
Adams, R. C.	Bird Island	Benedict, E. E.	Minneapolis	Calhoun, Frank W.	Albert Lea
Adams, R. T.	Mantorville	Benep, L. M.	St. Paul	Cameron, J. A.	St. Paul
Adams, W. T.	Elgin	Benham, E. W.	Mankato	Campbell, A. A.	St. Paul
Adkins, C. M.	Grygla	Benjamin, A. E.	Minneapolis	Campbell, E. P.	St. Paul
Adsit, A. M.	Hastings	Benn, F. G.	Minneapolis	Campbell, J. E.	South St. Paul
Ahrens, A. E.	St. Paul	Bennett, F. A.	Brainerd	Campbell, R. A.	Minneapolis
Ahrens, A. H.	St. Paul	Bennion, P. H.	St. Paul	Cannady, E. E.	Prior Lake
Aitkens, H. B.	Le Sueur Center	Benson, G. E.	Minneapolis	Cannfield, H. E.	Minneapolis
Akester, Ward	Marshall	Benson, Iver S.	Minneapolis	Cannon, C. M.	St. Paul
Aldes, Harry	St. Paul	Berge, P. L.	Brainerd	Cannon, Harry	St. Paul
Aldrich, A. G.	Minneapolis	Bergh, L. N.	Montevideo	Carlaw, C. M.	Minneapolis
Aldrich, F. H.	Bellevue	Berkman, D. M.	Rochester	Carman, Chas. L.	St. Paul
Alexander, F. H.	St. Paul	Berquist, K. E.	Duluth	Carman, J. E.	Detroit
Aling, C. P.	Minneapolis	Bertelsen, O. L.	Crookston	Cary, H. E.	Minneapolis
Allen, A. W.	Austin	Berthold, J. L.	Perham	Carstens, C. F.	Hibbing
Allen, C. C.	Austin	Bessesen, A. N.	Minneapolis	Cates, A. B.	Minneapolis
Allen, Frank A.	Elysian	Bessesen, W. A.	Albert Lea	Catlin, John J.	Buffalo
Allen, F. H.	Staples	Bettingen, J. W.	St. Paul	Catin, T. J.	Palisade
Allen, H. W.	Minneapolis	Bickford, H. G.	Minnesota Lake	Cavanaugh, J. O.	St. Paul
Allen, Mason	St. Paul	Bigelow, Chas. E.	Dodge Center	Cavanor, F. T.	Minneapolis
Allen, R. W.	Heron Lake	Biorn, N. A.	Jackson	Chamberlin, J. W.	St. Paul
Allen, Wilson A.	Rochester	Birnberg, T. L.	St. Paul	Chamberlin, W. A.	Waseca
Ancker, A. B.	St. Paul	Bissell, Frank S.	Minneapolis	Chambers, W. C.	Blue Earth
Anderson, A. E.	Minneapolis	Blanchard, H. G.	Waseca	Chapman, O. S.	Minneapolis
Anderson, C. A.	Rush City	Blake, James	Hopkins	Chapman, T. L.	Duluth
Anderson, J. D.	Minneapolis	Blakely, C. C.	St. Peter	Chapman, W. E.	Litchfield
Anderson, L. N.	Duluth	Blagen, H. M.	Oslo	Charpentier, A. A.	St. Paul
Anderson, W. S.	Warren	Blomburgh, A. F.	Minneapolis	Chatterton, C. C.	St. Paul
Andrews, J. W.	Mankato	Blong, P. H.	Elmore	Chadbourn, A. G.	Heron Lake
Andrews, Roy N.	Mankato	Bock, R. A.	St. Paul	Christensen, C. R.	Starbuck
Andrist, J. W.	Owatonna	Bockman, M.	Minneapolis	Christiansen, Andrew	St. Paul
Archibald, A. W.	Rochester	Boeckmann, Eduard	St. Paul	Christie, G. R.	Long Prairie
Arey, H. C.	Excelsior	Boeckmann, Egil	St. Paul	Christison, J. T.	St. Paul
Armstrong, J. M.	St. Paul	Boehm, J. C.	St. Cloud	Cirkler, A. A.	Minneapolis
Arndt, H. W.	Paynesville	Bohland, E. H.	St. Paul	Clair, J. B.	Winsted
Arneson, Thomas	Climax	Bohland, F. J.	Belle Plaine	Clark, C. H.	Duluth
Arnold, E. W.	Bigelow	Bole, R. S.	St. Paul	Clark, H. S.	Minneapolis
Arzt, C. P.	St. Paul	Boleyn, E. S.	Stillwater	Clarke, T. C.	Minneapolis
Arzt, Herbert L.	Jackson	Bolles, D. W.	Minneapolis		Soldier's Home, Minneapolis
Aune, Martin	Minneapolis	Bolsta, Chas.	Ortonville	Clay, E. M.	Renville
Aurand, W. H.	Minneapolis	Bolstad, H. C.	St. Paul	Clay, F. H.	St. Charles
Aurness, P. A.	Minneapolis	Bong, J. H.	Jasper	Claydon, L. E.	Red Wing
Austin, Edward E.	Minneapolis	Booren, Clifton A.	Minneapolis	Clifford, F. F.	West Concord
Avery, J. Fowler	Minneapolis	Booth, A. E.	Minneapolis	Cobb, W. F.	Lyle
Awtly, W. J.	Moorhead	Bosworth, Robinson	St. Paul	Cobb, S. G.	St. Paul
Axlrod, D. L.	Hutchinson	Bouman, H. A.	Minneapolis	Cochrane, W. J.	Lake City
Aylmer, A. L.	Minneapolis	Bowers, J. T.	Gully	Cohen, H. A.	Minneapolis
		Boyd, L. M.	Alexandria	Cole, A. B.	Fergus Falls
Babcock, F. M.	Northfield	Boyer, S. H.	Duluth	Cole, Herman B.	Franklin
Bacon, C. G.	Marshall	Boysen, Peter	Pelican Rapids	Cole, Wallace	St. Paul
Bacon, Knox	St. Paul	Braasch, W. F.	Rochester	Coleman, F. B.	Willmar
Bacon, L. C.	St. Paul	Bracken, H. M.	Minneapolis	Collins, Arthur N.	Duluth
Bacon, R. S.	Montevideo	Braden, A. J.	Duluth	Collins, Herbert O.	Minneapolis
Badeaux, Geo. I.	St. Paul	Bradley, C. H.	Minneapolis	Collins, Homer C.	Duluth
Baier, Florence C.	Minneapolis	Brand, W. A.	Redwood Falls	Colvin, A. R.	St. Paul
Baker, A. C.	Fergus Falls	Branton, B. J.	Willmar	Comstock, A. E.	St. Paul
Baker, A. L.	Kasson	Bratrud, Theodore	Warren	Conley, A. T.	Cannon Falls
Baker, E. L.	Minneapolis	Bray, C. W.	Biwabik	Conley, H. E.	Cannon Falls
Baker, G. L.	Waltham	Bray, E. R.	St. Paul	Cook, Henry W.	Minneapolis
Baker, Looe	Minneapolis	Brede, W. G.	Minneapolis	Cook, Paul B.	St. Paul
Bakke, O. H.	Minneapolis	Breltenbach, O. C.	Frazee	Cooney, H. C.	Princeton
Balcome, F. E.	St. Paul	Brigham, F. T.	Watkins	Corbett, J. F.	Minneapolis
Balcom, G. B.	Lake Wilson	Brigham, G. S.	St. Cloud	Corrigan, J. E.	Spooner
Baldwin, L. B.	Minneapolis	Brimhall, J. B.	St. Paul	Cory, Wm. M.	Waterville
Balfour, Donald	Rochester	Broberg, J. A.	Blue Earth	Cosman, E. O.	Minneapolis
Ball, C. R.	St. Paul	Brooks, Charles N.	Minneapolis	Coulter, Chas. F.	Wadena
Ballard, J. A.	Hayward, Wis.	Brooks, D. F.	St. Paul	Courtney, Walter	Brainerd
Barber, J. P.	Minneapolis	Brown, A. H.	Pipestone	Coventry, W. A.	Duluth
Barclay, A.	Cloquet	Brown, E. D.	Minneapolis	Covey, Herman W.	St. Peter
Barnard, Elizabeth M.	Faribault	Brown, E. J.	Minneapolis	Cowen, E. W.	North St. Paul
Barney, Leon A.	Duluth	Brown, J. C.	St. Paul	Cowles, D. C.	Minneapolis
Barr, W. H.	Wells	Brown, Paul F.	Minneapolis	Crafts, L. M.	Minneapolis
Barrett, E. E.	Glencoe	Brown, R. S.	Minneapolis	Cranmer, R. R.	Minneapolis
Barron, Moses	St. Paul	Browning, W. E.	Caledonia	Cramer, M. H.	Red Wing
Barry, L. W.	Duluth	Brunelle, A. M.	Cloquet	Cramer, P. H.	Hastings
Barness, Nellie	St. Paul	Buck, Fred H.	Shakopee	Cress, P. J.	Ellsworth
Barton, E. R.	Frazee	Buckley, E. W.	St. Paul	Cressy, F. J.	Granite Falls
Bass, G. W.	Minneapolis	Budd, J. D.	Two Harbors	Crew, John E.	Rochester
Baskett, Geo. T.	St. Peter	Burch, F. E.	St. Paul	Crispin, E. L.	Rochester
Baskett, L. W.	Stevenson	Burfiend, G. H.	Afton	Crosby, J. A.	Minneapolis
Baskett, Olive T.	St. Peter	Burnap, W. L.	Pelican Rapids	Crothers, Bronson	St. Paul
Batchelder, E. J.	New Richland	Burns, F. W.	Montevideo	Crowe, J. H.	Virginia
Baxter, S. H.	Minneapolis	Burns, H. A.	Minneapolis	Crume, Geo. P.	Minneapolis
Bayley, E. H.	Lake City	Burns, M. A.	Milan	Cuff, W. S.	St. Paul
Beach, G. Wm.	Walker			Curran, G. R.	Mankato
				Cutts, G. A. C.	Grove City



Dahl, G. A. ....	Mankato	Flinn, Thos. E. ....	Redwood Falls	Hand, W. R. ....	Elbow Lake
Dahlquist, G. W. ....	Lancaster	Flower, Ward Z. ....	Gibbon	Haney, C. L. ....	Duluth
Daighnault, Oscar. ....	Benson	Forbes, R. S. ....	Duluth	Hankee, P. R. ....	Cannon Falls
Dailey, W. J. ....	Blooming Prairie	Foster, Burnside. ....	St. Paul	Hansen, Henry V. ....	New London
Dampier, C. E. ....	Crookston	Fox, Jno. M. ....	Minneapolis	Hanson, A. M. ....	Faribault
Daniels, J. W. ....	St. Peter	Franzen, H. G. ....	Minneapolis	Hard, A. D. ....	Marshall
Danielson, Karl A. ....	Litchfield	Freeborn, J. A. ....	Fergus Falls	Harding, J. C. ....	St. Paul
Darling, J. L. ....	St. Paul	Freeman, Charles D. ....	St. Paul	Hare, E. R. ....	Minneapolis
Darrow, Daniel C. ....	Moorhead	Freeman, Geo. H. ....	Willmar	Harrach, J. W. ....	Minneapolis
Daugherty, E. B. ....	St. Paul	Freeman, J. P. ....	Glenville	Harrington, C. D. ....	Minneapolis
Daugherty, L. E. ....	St. Paul	French, E. A. ....	Plainview	Hart, A. B. ....	Owatonna
Davis, F. U. ....	Faribault	Freshaug, S. J. ....	Benson	Hart, Bruce D. ....	Round Lake
Davis, F. W. ....	Alden	Friesleben, William. ....	Sauk Rapids	Hart, M. J. ....	LeRoy
Davis, Herbert. ....	St. Paul	Fritsche, L. A. ....	New Ulm	Hartzell, Thos. B. ....	Minneapolis
Davis, L. A. ....	Dalton	Froehlich, H. W. ....	Thief River Falls	Haskell, A. D. ....	Alexandria
Davis, William. ....	St. Paul	Frost, E. H. ....	Willmar	Haugan, O. M. ....	Fergus Falls
De Boer, Hermanus. ....	Edgerton	Fryberger, Wm. O. ....	Minneapolis	Hauge, M. M. ....	Clarkfield
Delolph, Karl. ....	St. Paul	Furber, W. W. ....	Cottage Grove	Haugen, G. T. ....	Battle Lake
Delmore, J. L. ....	Roseau	Gaag, E. W. ....	Browerville	Haugseth, Enoch. ....	Twin Valley
Dempsey, D. P. ....	Kellogg	Gambell, F. H. ....	Thief River Falls	Havens, J. G. W. ....	Cloquet
Dennis, W. A. ....	St. Paul	Gammell, H. W. ....	Madison	Haverfield, Addie R. ....	Minneapolis
Denny, C. F. ....	St. Paul	Garand, J. H. ....	Dayton	Hawkins, E. P. ....	Montrose
Dewar, J. Evan. ....	St. Paul	Gardner, E. L. ....	Minneapolis	Hawkins, V. J. ....	St. Paul
Deziel, G. ....	Minneapolis	Gates, C. E. ....	Goodhue	Hayes, Edw. W. ....	Browns Valley
Dickson, T. H., Jr. ....	St. Paul	Gates, G. L. ....	Winona	Hayes, James M. ....	Browns Valley
Dinwoodie, Wm. ....	St. Paul	Gates, J. A. ....	Kenyon	Haynes, B. H. ....	St. James
Disen, C. F. ....	Minneapolis	Gauger, E. C. ....	St. Paul	Haynes, F. E. ....	Minneapolis
Dittman, Geo. C. ....	St. Paul	Geer, E. F. ....	St. Paul	Head, Geo. D. ....	Minneapolis
Dodge, Franklin A. ....	Le Sueur	Geist, Emil S. ....	Minneapolis	Heagerty, W. B. ....	Mazeppa
Dodge, W. M. ....	Farmington	Geist, Geo. A. ....	St. Paul	Heath, A. C. ....	St. Paul
Dohm, A. J. ....	St. Paul	Geiz, John J. ....	Richmond	Hedback, A. E. ....	Minneapolis
Dohm, C. L. ....	St. Paul	George, J. W. ....	Minneapolis	Hegge, C. A. ....	Austin
Dolan, C. P. ....	Worthington	Gerber, Lou M. ....	Jasper	Hegge, O. H. ....	Austin
Doms, H. C. ....	Slayton	Germo, Chas. ....	Balaton	Heimark, J. H. ....	Hawley
Donaldson, C. A. ....	Minneapolis	Ghent, M. M. ....	St. Paul	Heise, W. F. C. ....	Winona
Donovan, J. J. ....	Litchfield	Gibbon, L. L. ....	Lowry	Heilscher, Helen Hughes. ....	Mankato
Drake, C. B. ....	St. Paul	Giere, E. O. ....	Watertown, S. D.	Heilscher, J. A. ....	Mankato
Drake, C. R. ....	Minneapolis	Giffin, H. Z. ....	Rochester	Helk, H. H. ....	Minneapolis
Dredge, H. P. ....	Sandstone	Gillfillan, J. S. ....	St. Paul	Helland, G. M. ....	Spring Grove
Drenning, F. C. ....	Duluth	Gilkey, S. E. ....	Watson	Helland, J. W. ....	Maynard
Driesbach, N. ....	Minneapolis	Gilkinson, A. J. ....	Osakis	Henderson, M. S. ....	Rochester
Drought, W. W. ....	Fergus Falls	Gillespie, N. H. ....	Duluth	Henderson, A. Powell River, B. C.	Hendrickson, J. F. ....
Dryden, F. M. ....	Crookston	Gillette, A. J. ....	St. Paul	Hendrickson, J. F. ....	Osakis
DuBois, Julian A. ....	Sauk Center	Gilmore, R. T. ....	Bemidji	Henricksen, H. G. ....	New Market
Duclos, J. A. ....	Henderson	Gleysteen, D. ....	Lamberton	Henry, C. E. ....	Minneapolis
Dudley, J. H. ....	Windom	Glyer, R. T. ....	Broton	Hensel, Charles N. ....	St. Paul
Duncan, H. ....	Marietta	Goehrs, H. W. ....	Melrose	Henslin, A. E. ....	LeRoy
Dunlop, A. H. ....	Crookston	Goltz, E. V. ....	St. Paul	Hering, H. H. ....	Minneapolis
Dunning, A. W. ....	St. Paul	Gordon, G. J. ....	Minneapolis	Herron, D. A. ....	Comfrey
Dunsmoor, F. A. ....	Minneapolis	Gosslee, A. F. ....	Pillager	Hesselgrave, S. S. ....	St. Paul
Durgin, F. L. ....	Winnebago	Gosslee, G. L. ....	Moorhead	Heyerdal, O. C. ....	Rochester
Dutton, C. E. ....	Minneapolis	Gotham, C. L. ....	St. Paul	Hieber, H. G. ....	Thief River Falls
Earl, George A. ....	St. Paul	Gould, J. B. ....	Minneapolis	Higbee, Paul A. ....	Minneapolis
Earl, R. O. ....	St. Paul	Graham, C. ....	Rochester	Higgins, J. H. ....	Minneapolis
Eaton, W. H. ....	Adrian	Graham, David. ....	Duluth	Hilbert, Pierre A. ....	Melrose
Eberlin, E. A. ....	Glenwood	Graham, R. ....	Duluth	Hilger, A. W. ....	St. Paul
Eby, Cyrus B. ....	Spring Valley	Gramenz, F. ....	Albert Lea	Hilger, D. D. ....	St. Paul
Eckstein, Arthur W. ....	Holdingford	Granger, Gertrude B. ....	Rochester	Hilger, J. M. ....	Iona
Edmunds, I. L. ....	Clearwater	Gratzek, Thos. ....	St. Paul	Hill, A. L. ....	Monticello
Egan, John M. ....	Minneapolis	Gravelle, J. M. A. ....	St. Paul	Hill, Eleanor J. ....	Minneapolis
Eggen, O. K. ....	Minneapolis	Graves, Carlton. ....	Aitkin	Hill, R. J. ....	Minneapolis
Ehmkke, W. C. ....	Willow River	Grawn, F. A. ....	Duluth	Hirschfeld, Adolph. ....	Minneapolis
Eitel, Geo. G. ....	Minneapolis	Gray, C. E. ....	Rush City	Hirschfeld, M. S. ....	Duluth
Eklblad, J. W. ....	Duluth	Gray, F. D. ....	Marshall	Hitchings, Wm. S. ....	Belgrade
Eklund, J. J. ....	Duluth	Greeley, L. Q. ....	Duluth	Hobbs, C. A. ....	Minneapolis
Elsey, J. R. ....	Glenwood	Green, E. F. ....	St. Cloud	Hodge, S. V. ....	Minneapolis
Engbers, Edw. John. ....	St. Paul	Greene, Charles Lyman. ....	St. Paul	Hodgson, H. H. ....	Crookston
Engstad, J. E. ....	Minneapolis	Grimes, H. B. ....	Madella	Hoegh, Knut. ....	Minneapolis
Erb, Frederick A. ....	Minneapolis	Grivelli, Chas. T. ....	Young America	Hoff, Alfred. ....	St. Paul
Ericson, J. G. ....	Minneapolis	Grivelly, Hans J. ....	Waynesburg, Ky.	Hoff, Peder A. ....	St. Paul
Ernest, Geo. C. ....	St. Paul	Groll, S. ....	Minneapolis	Hoffman, J. ....	Henning
Esheby, E. C. ....	St. Paul	Grover, F. C. ....	Duluth	Hoidale, A. D. ....	Tracy
Esser, John. ....	Perham	Guilford, H. M. ....	Minneapolis	Holland, A. S. ....	Argyle
Estrem, C. O. ....	Fergus Falls	Guilford, W. C. ....	St. Cloud	Holt, Edward E. ....	Detroit
Eusterman, Geo. ....	Rochester	Gullixson, Andrew. ....	Bricelyn	Holbrook, J. S. ....	Mankato
Ewing, C. F. ....	Wheaton	Gunderson, H. J. ....	Minneapolis	Holcomb, O. W. ....	St. Paul
Fahey, E. W. ....	Duluth	Gunz, A. N. ....	Centre City	Holdridge, Geo. A. ....	Foley
Farmer, J. C. ....	McKinley	Hacking, E. H. ....	Minneapolis	Holl, P. M. ....	Minneapolis
Farr, R. E. ....	Minneapolis	Haessley, S. B. ....	Faribault	Hollands, Wm. H. ....	Fisher
Feidt, W. W. ....	Minneapolis	Hagen, G. L. ....	Minneapolis	Holm, P. F. ....	Wells
Fenger, P. N. ....	Askon	Hagen, H. O. ....	New Richland	Holman, C. J. ....	Mankato
Ferguson, J. C. ....	St. Paul	Hagen, O. E. ....	Butterfield	Holmberg, L. J. ....	Canby
Ferguson, James B. ....	St. Paul	Hagen, Ole J. ....	Moorhead	Holst, C. F. ....	Little Falls
Feld, Merton. ....	Canby	Haggard, G. D. ....	Minneapolis	Holst, J. B. ....	Little Falls
Fifield, Emily W. ....	Minneapolis	Haight, G. G. ....	Audubon	Holte, H. ....	Crookston
Finley, W. F. ....	Lonsdale	Haines, J. H. ....	Stillwater	Horning, D. W. ....	Minneapolis
Fisher, Carl. ....	Rochester	Hall, A. R. ....	St. Paul	Hovorka, T. W. ....	Glencoe
Fischer, H. P. ....	Shakopee	Hall, Pearl M. ....	Minneapolis	Hubert, R. I. ....	St. Paul
Fischer, O. F. ....	Houston	Hall, W. A. ....	Minneapolis	Huenekens, E. J. ....	Minneapolis
Fischer, P. M. ....	Shakopee	Hallenbeck, Dorr F. ....	Rochester	Hulburd, H. L. ....	Morris
FitzGerald, Don F. ....	Minneapolis	Hamilton, A. S. ....	Minneapolis	Humphrey, E. W. ....	Moorhead
Fitzgerald, E. T. ....	Morris	Hammerstrand, F. L. ....	Sacred Heart	Humphrey, W. R. ....	Stillwater
Fjelstad, C. A. ....	Glenwood	Hammes, E. M. ....	St. Paul	Hunt, E. N. ....	Fairmont
Fjelstad, C. A. ....	Red Wing	Hammond, J. F. ....	St. Paul	Hunt, H. E. ....	St. Paul
Flagg, S. D. ....	St. Paul			Hunt, R. C. ....	Northfield
Fleischhauer, D. S. ....	Wabasha			Hunt, W. A. ....	Northfield
Fleming, A. S. ....	Minneapolis				
Fleming, James. ....	Cloquet				

Hunte, A. F. ....	Truman	Knight, H. L. ....	Minneapolis	McCoy, Mary K. ....	Duluth
Hursh, M. M. ....	Grand Rapids	Knight, R. R. ....	Minneapolis	McCuen, J. A. ....	Duluth
Huxley, F. R. ....	Faribault	Knights, F. A. ....	Pequot	McDaniel, Orianua. ....	Minneapolis
Hvoslef, Jakob ....	Minneapolis	Kohler, Geo. A. ....	Minneapolis	McDavid, Thos. ....	St. Paul
Hvoslef, J. C. ....	Lanesboro	Koller, L. R. ....	Minneapolis	McDermott, T. E. ....	Minneapolis
Hynes, James ....	Minneapolis	Kolset, Carl D. ....	Broton	McDonald, A. L. ....	Duluth
Hynes, J. E. ....	Minneapolis	Koren, F. ....	Watertown, S. D.	McDonald, H. N. ....	Minneapolis
Ide, A. W. ....	Brainerd	Kraft, Peter ....	Duluth	McDougald, D. W. ....	Le Sueur
Ingerson, Carl A. ....	St. Paul	Kriedt, Dan'l ....	Minneapolis	McDowell, J. P. ....	Sauk Rapids
Irvine, H. G. ....	Minneapolis	Kuhlmann, August ....	Melrose	McEachran, A. ....	Minneapolis
Irwin, A. F. ....	Cleveland, Ohio	Kurz, John ....	Cook	McGaughey, H. F. ....	Winona
Jacobs, A. C. ....	Elmore	Kusske, A. L. ....	Hutchinson	McGroarty, J. J. ....	Easton
Jacobs, J. C. ....	Willmar	Kuth, Jos. R. ....	Duluth	McGuigan, H. T. ....	Red Wing
Jacquot, G. L. ....	Ivanhoe	Lajoie, J. M. ....	Minneapolis	McHugh, R. F. ....	Eveleth
James, J. H. ....	Mankato	Lamb, Harold L. ....	Sauk Center	McIntyre, E. H. ....	Virginia
Jamieson, Earl ....	Walnut Grove	Lande, Wm. B. ....	St. Paul	McIntyre, Geo. ....	Minneapolis
Jellison, E. R. ....	Cokato	Landeen, F. G. ....	Stillwater	McIntyre, G. W. ....	St. Peter
Jensen, J. C. ....	Hendricks	Landenberger, John. ....	New Prague	McKeon, James ....	Montgomery
Jensen, M. J. ....	Minneapolis	Lane, Laura A. ....	Faribault	McKeon, Owen. ....	St. Paul
Jensen, T. J. ....	Duluth	Laney, R. L. ....	Cusson	McKeown, E. G. ....	Edgerton
Jesion, J. W. ....	Duluth	Langenderfer, F. V. ....	St. Paul	McKinstry, H. L. ....	Clinton
Johann, Albert E. ....	Minneapolis	Lankester, Howard ....	St. Paul	McLaren, Jennette M. ....	St. Paul
Johnson, A. E. ....	Minneapolis	Lannin, J. C. ....	Mabel	McLaughlin, E. M. ....	Winona
Johnson, A. E. ....	Watertown, S. D.	Lapierre, C. A. ....	Minneapolis	McLaughlin, J. A. ....	Minneapolis
Johnson, Asa M. ....	St. Paul	Larsen, C. L. ....	St. Paul	McMahon, D. J. ....	Raymond
Johnson, Carl M. ....	Montevideo	Larsen, O. O. ....	Detroit	McMichael, O. H. ....	Minneapolis
Johnson, Christian. ....	Willmar	Laurent, A. A. ....	Minneapolis	McNevin, C. F. ....	St. Paul
Johnson, Geo. L. ....	Newfolden	La Vake, R. T. ....	Minneapolis	MacDonald, D. A. ....	Minneapolis
Johnson, H. Amanda. ....	White Salmon, Wash.	Law, A. A. ....	Minneapolis	MacDonald, I. C. ....	Minneapolis
Johnson, Haus ....	Kerkhoven	Laws, C. H. ....	Boston, Mass.	MacLaren, Archibald ....	St. Paul
Johnson, H. C. ....	St. Paul	Leach, W. D. ....	Callaway	Macnie, J. S. ....	Minneapolis
Johnson, H. M. ....	Dawson	Leahy, Bartholomew. ....	St. Paul	Magie, W. H. ....	Duluth
Johnson, H. P. ....	Fairmont	Leavitt, H. H. ....	Minneapolis	Maitland, David P. ....	Jackson
Johnson, Julius ....	Minneapolis	Leavitt, Frederick E. ....	St. Paul	Maloney, T. J. ....	St. Paul
Johnson, Nimrod A. ....	Minneapolis	Leck, Clifford C. ....	Austin	Manley, J. R. ....	Duluth
Johnson, T. H. ....	St. Paul	Le Clerc, Joseph E. ....	Le Sueur	Mann, A. T. ....	Minneapolis
Johnston, E. B. ....	Benson	Lee, W. A. ....	Underwood	Manson, F. M. ....	Worthington
Jones, A. W. ....	Red Wing	Lee, W. P. ....	Northfield	Marcley, W. J. ....	Minneapolis
Jones, D. N. ....	Minneapolis	Leibens, John H. ....	Lismore	Marcum, E. H. ....	Bemidji
Jones, E. M. ....	St. Paul	Leibold, H. H. ....	Parkers Prairie	Mark, D. B. ....	Minneapolis
Jones, Herbert W. ....	Minneapolis	Leicht, Oswald ....	Winona	Marken, M. H. ....	Boyd
Jones, W. A. ....	Minneapolis	Leigh, H. J. ....	Lakefield	Martin, T. R. ....	Duluth
Joyce, Geo. T. ....	Rochester	Leitch, Arch. ....	St. Paul	Matthews, Justus. ....	Rochester
Joyce, T. M. ....	Janesville	Leland, M. N. ....	Minneapolis	Maurer, E. L. ....	Brownston
Judd, E. S. ....	Rochester	Leland, J. T. ....	Herman	Maxeiner, Stanley R. ....	Minneapolis
Just, A. A. ....	Crookston	Lemieux, Israel. ....	Red Lake Falls	May, C. C. ....	Adrian
Kabrick, O. A. ....	Olin	Lenont, C. B. ....	Virginia	May, C. E. ....	Tower
Kaess, A. J. ....	Fargo, N. D.	Lepak, F. J. ....	Duluth	May, W. H. ....	Minneapolis
Kahala, Arthur. ....	Erskine	Lerche, Wilhelm ....	St. Paul	Mayland, M. L. ....	Faribault
Kalinoff, D. ....	Stillwater	Lester, C. A. ....	Winona	Mayo, C. H. ....	Rochester
Kamp, Byron A. ....	Albert Lea	Leuty, Amos ....	Morris	Mayo, W. J. ....	Rochester
Kannary, E. L. ....	St. Paul	Lewis, C. B. ....	St. Cloud	Mead, Marion A. ....	Minneapolis
Kanne, C. W. ....	Arlington	Lewis, C. F. ....	Austin	Meade, Charles J. ....	St. Paul
Karn, B. R. ....	Ortonville	Lewis, Edwin J. ....	Sauk Center	Meckstroth, C. W. ....	Brandon
Kavahagh, K. S. ....	Minneapolis	Lewis, J. B. ....	South St. Paul	Mejerding, W. A. ....	Springfield
Kaufman, Wm. C. ....	Appleton	Lewis, J. D. ....	Minneapolis	Meighen, J. W. ....	Ulen
Kean, N. D. ....	Coleraine	Lewis, W. W. ....	St. Paul	Meilicke, W. A. ....	Janesville
Keats, Julia M. ....	Antelope, Mont.	Lexa, F. J. ....	Lonsdale	Melby, Benedict. ....	Blooming Prairie
Keene, L. M. ....	Alexandria	Lichtenstein, H. M. ....	Winona	Melby, O. F. ....	Thief River Falls
Kelly, B. W. ....	Aitkin	Liedloff, A. G. ....	Mankato	Merrill, B. J. ....	Stillwater
Kelly, E. S. ....	Minneapolis	Lima, Ludwig ....	Montevideo	Merrill, J. E. ....	Amboy
Kelly, John V. ....	St. Paul	Lind, A. ....	Minneapolis	Merritt, Geo. F. ....	St. Peter
Kelly, Paul H. ....	St. Paul	Lind, C. J. ....	Minneapolis	Mesker, G. H. ....	Olivia
Kelly, T. C. ....	Mankato	Lindberg, A. C. ....	North Branch	Metcalf, J. N. ....	Monticello
Kelly, W. D. ....	St. Paul	Linde, Herman ....	Cyrus	Meyer, E. L. ....	Minneapolis
Kelsey, C. G. ....	Hinckley	Lindsay, W. V. ....	Winona	Meyerding, E. A. ....	St. Paul
Kemp, A. F. ....	Mankato	Linnemann, N. L. ....	Duluth	Michelson, H. E. ....	Virginia
Kennedy, Jane F. ....	Minneapolis	Linner, H. P. ....	Minneapolis	Mikkelsen, M. ....	Wells
Kenyon, Paul E. ....	Wadena	Linton, Laura A. ....	Rochester	Miller, A. W. ....	St. Paul
Kern, M. J. ....	St. Cloud	Linton, W. B. ....	Rochester	Miller, Henrietta P. ....	Cloquet
Kerns, H. ....	Granite Falls	Little, De Willis. ....	Appleton	Miller, Hugo H. ....	Harvey, N. D.
Kerrick, Stanley E. ....	Minneapolis	Little, J. W. ....	Minneapolis	Miller, Victor I. ....	Mankato
Kerrick, Herman. ....	St. Paul	Little, W. J. ....	St. Paul	Miller, W. A. ....	New York Mills
Keyes, C. R. ....	Duluth	Litzenberg, J. C. ....	Minneapolis	Millsbaugh, J. G. ....	Little Falls
Keyes, E. D. ....	Winona	Lloyd, H. J. ....	Lake Crystal	Mitchell, Frederick J. ....	St. Paul
Kibbe, O. A. ....	Canton	Loberg, A. E. ....	Minneapolis	Mitchell, R. S. ....	Grand Meadow
Kiefer, M. A. ....	Sleepy Eye	Logan, A. H. ....	Rochester	Moe, Anton J. ....	Heron Lake
Kierland, P. E. ....	Harmony	Long, Jesse ....	Minneapolis	Moffatt, A. G. ....	Howard Lake
Kiesling, I. H. ....	Rockford	Love, Geo. A. ....	Preston	Mogilner, S. N. ....	St. Paul
Kilbourne, A. F. ....	Rochester	Lowe, L. M. ....	Glyndon	Moir, Wm. W. ....	Minneapolis
Kilbride, J. S. ....	Watertown, S. D.	Lowe, Thomas ....	Pipestone	Moloney, G. R. ....	Belle Plaine
Kimball, H. H. ....	Minneapolis	Luck, Hilda. ....	Mankato	Molzahn, H. E. ....	St. Paul
King, Emil ....	Fulda	Luedtke, G. H. ....	Fairmont	Monahan, J. A. ....	Minneapolis
King, E. A. ....	Minneapolis	Lufkin, H. M. ....	St. Paul	Monahan, T. H. ....	Crosby
King, H. V. ....	Millville	Lum, C. E. ....	Duluth	Moore, J. E. ....	Minneapolis
Kirghis, A. J. ....	St. Cloud	Lundholm, E. M. ....	St. Paul	Moorehead, Martha B. ....	Minneapolis
Kirsch, Ralph L. ....	Crookston	Lynch, Elizabeth ....	Winona	More, C. W. ....	Eveleth
Kistler, C. M. ....	Minneapolis	Lynch, J. L. ....	Winona	Morehouse, G. H. ....	Owatonna
Kistler, J. M. ....	Minneapolis	Lynch, M. J. ....	Minneapolis	Moren, E. ....	Minneapolis
Kittelson, T. N. ....	Fergus Falls	Lynn, John A. ....	Fergus Falls	Mork, B. O. ....	Worthington
Kjelland, J. S. ....	Crookston	Lynn, J. F. ....	Waseca	Morley, G. A. ....	Crookston
Klein, Harry ....	Duluth	McBroom, D. E. ....	Adams	Morris, Minor. ....	Hopkins
Klein, H. N. ....	St. Paul	McCarthy, W. J. ....	Madelia	Morrison, A. W. ....	Minneapolis
Knauff, M. K. ....	Two Harbors	McClanahan, J. H. ....	White Bear	Morse, John H. ....	Minneapolis
Knickerbocker, Frank H. ....	Staples	McCloud, C. N. ....	St. Paul	Mortensen, N. G. ....	St. Paul
		McCollom, C. A. ....	Minneapolis	Morton, H. McI. ....	Minneapolis
		McComb, C. F. ....	Duluth	Mosse, F. R. ....	Rochester
				Moynihan, A. F. ....	Sauk Center
				Moynihan, T. J. ....	St. Paul



Muir, Edwin S. .... Winona  
Muir, J. B. .... Roseau  
Mullin, R. H. .... Minneapolis  
Murdoch, A. J. .... Minneapolis  
Murdoch, H. G. .... Taylor's Falls  
Murphy, E. F. .... St. Paul  
Murphy, G. D. .... Murdock  
Murphy, Ignatius J. .... Duluth  
Murphy, W. B. .... Minneapolis  
Murray, Wm. R. .... Minneapolis  
Mussey, R. D. .... Rochester

Nabhan, Y. J. J. .... St. Paul  
Naegeli, Frank. .... Fergus Falls  
Nannestad, J. R. .... Albert Lea  
Nauth, W. W. .... Minneiska  
Nelson, C. P. .... Minneapolis  
Nelson, H. E. .... Crookston  
Nelson, H. S. .... Minneapolis  
Nelson, L. A. .... St. Paul  
Nelson, M. S. .... Spring Grove  
Nelson, N. A. .... Dawson  
Neumann, C. A. .... Lewiston  
Neumann, W. H. .... Lewiston  
New, G. B. .... Rochester  
Newhart, Horace. .... Minneapolis  
Newkirk, H. D. .... Minneapolis  
Newman, G. A. .... Stillwater  
Nickerson, M. L. .... Minneapolis  
Nippert, H. T. .... St. Paul  
Nippert, L. A. .... Minneapolis  
Nissen, Henrik. .... Minneapolis  
Nootnagel, C. F. .... Minneapolis  
Nordin, C. G. .... Brainerd  
Nordland, Martin. .... Robbinsdale  
Norman, J. F. .... Crookston  
Norred, C. H. .... Minneapolis  
Novak, E. E. .... New Prague  
Nusbaum, D. H. .... Jackson

O'Brien, H. J. .... St. Paul  
O'Connor, D. C. .... Eden Valley  
O'Connor, J. V. .... St. Paul  
O'Donnell, J. E. .... Minneapolis  
O'Hair, P. .... Waverly  
O'Hara, J. J. .... Janesville  
O'Malley, W. P. .... St. Paul  
Ober, C. M. .... Minneapolis  
Odendahl, F. H. .... St. Paul  
Ogden, B. H. .... St. Paul  
Ohage, Justus. .... St. Paul  
Ohage, Justus, Jr. Dickenson, N. D.  
Olandstad, J. .... McIntosh  
Olander, J. E. .... St. Paul  
Oliver, C. L. .... Graceville  
Olsen, S. H. .... Milaca  
Olson, C. A. .... St. Paul  
Olson, F. A. .... St. Paul  
Olson, G. M. .... Minneapolis  
Olson, Olaf A. .... Minneapolis  
Olson, O. H. .... Erskine  
Olson, R. G. .... Nicollet  
Olson, Wm. P. .... Gaylord  
Onsgard, C. K. .... Rushford  
Onsgard, L. K. .... Houston  
Oppgaard, M. O. .... New London  
Orton, H. N. .... Minneapolis  
Osborn, Lida. .... Mankato  
Ostergren, E. W. .... St. Paul  
Otto, H. C. .... Vergas  
Overend, K. V. .... Kennedy  
Owre, Oscar. .... Minneapolis

Painter, J. Carl. .... Mora  
Palmer, W. L. .... Albert Lea  
Pare, L. T. .... Duluth  
Parker, E. H. .... Minneapolis  
Parks, Albert H. .... Minneapolis  
Parrott, B. W. .... Long Prairie  
Parsons, George E. .... Elk River  
Passer, A. A. .... Olivia  
Patterson, W. E. .... Currie  
Patton, F. J. .... Duluth  
Paulson, E. L. .... Minneapolis  
Paulson, Theo. S. .... Tyler  
Payette, C. H. .... Duluth  
Pease, G. R. .... Redwood Falls  
Peck, L. D. .... Hastings  
Pederson, R. M. .... Minneapolis  
Peirson, Homer F. .... Austin  
Pengelly, E. J. .... Ironton  
Penhall, F. W. .... Morton  
Peppard, T. A. .... Minneapolis  
Persons, C. E. .... Marshall  
Perry, C. G. .... St. Paul  
Perry, Ralph St. J. .... Farmington  
Peters, R. M. .... Minneapolis  
Peterson, A. C. .... Dassel

Peterson, August J. .... Spicer  
Peterson, Christian. .... Owatonna  
Peterson, Geo. E. .... Dassel  
Peterson, Henry E. .... Graceville  
Peterson, J. R. .... Minneapolis  
Peterson, R. A. .... Vesta  
Peterson, T. .... Gaylord  
Peterson, V. N. .... St. Paul  
Pettit, C. W. .... Minneapolis  
Phelps, R. .... St. Peter  
Phillips, J. G. .... Northfield  
Phillips, Wm. H. .... Jordan  
Pilon, Pierre C. .... Paynesville  
Pine, A. A. .... St. Paul  
Pineo, W. B. .... Minneapolis  
Piper, M. C. .... Sanborn  
Plankers, Arnold F. .... St. Paul  
Platt, J. J. .... St. Paul  
Plehn, J. F. .... Minneapolis  
Plondke, F. J. .... St. Paul  
Plonske, C. J. .... Minneapolis  
Plummer, H. S. .... Rochester  
Plummer, W. A. .... Rochester

Poehler, F. T. .... Minneapolis  
Pollock, Lee W. .... Rochester  
Pool, Daniel. .... St. Paul  
Poppe, Fred H. .... Minneapolis  
Portmann, Wm. C. .... Jackson  
Powers, F. W. .... Barrett  
Pratt, C. C. .... Mankato  
Pratt, F. J. .... Minneapolis  
Prim, J. A. .... Minneapolis  
Pritchard, D. B. .... Winona  
Prudden, C. E. .... Duluth  
Puffer, F. L. .... Bird Island  
Putney, George E. .... Paynesville

Quinby, Thos. F. .... Minneapolis  
Quinn, J. A. .... St. Paul  
Quinnell, Earle D. .... Ortonville  
Quist, Henry W. .... Minneapolis

Rains, John M. .... Willmar  
Raiter, Franklin. .... Cloquet  
Ramaley, L. .... St. Paul  
Ramsey, W. R. .... St. Paul  
Randall, A. M. .... Ashby  
Randall, B. M. .... Graceville  
Randolph, Wilson. .... Crookston  
Rankin, A. A. .... Zumbro Falls  
Ransom, M. L. .... Hancock  
Ratcliffe, J. J. .... Aitkin  
Rathbun, A. M. .... Rice  
Ravn, Bjarne. .... Milroy  
Rebman, E. C. .... Austin  
Reed, Chas. A. .... Minneapolis  
Rees, S. P. .... Minneapolis  
Reimstad, C. S. .... Brainerd  
Reinke, G. F. .... New Ulm  
Renz, G. A. .... St. Paul  
Reiter, H. W. .... Shakopee  
Rexford, L. A. .... Minneapolis  
Reynolds, J. S. .... Minneapolis  
Rice, Geo. D. .... Paynesville  
Richards, E. T. F. .... St. Paul  
Richardson, W. E. .... Slayton  
Richardson, W. J. .... Fairmont  
Richmond, Chas. D. .... Jeffers  
Ridgway, Alex. .... Belgrade  
Ridgway, A. M. .... Annandale  
Riggs, C. E. .... St. Paul  
Ringnell, C. J. .... Minneapolis  
Rishmiller, J. H. .... Minneapolis  
Risjord, J. N. .... Fertile  
Ritchie, H. P. .... St. Paul  
Roadman, Ira M. .... Onamia  
Roan, Carl M. .... Minneapolis  
Roberts, L. M. .... Little Falls  
Roberts, Thos. S. .... Minneapolis  
Roberts, W. B. .... Minneapolis  
Robertson, Archibald W. .... Litchfield  
Robertson, H. E. .... Minneapolis  
Robertson, W. P. .... Litchfield  
Robbins, C. P. .... Winona  
Robilliard, Chas. M. .... Morristown  
Robilliard, W. H. .... Faribault  
Robinson, L. S. B. .... St. Paul  
Robitshek, E. C. .... Minneapolis  
Rochford, W. E. .... Minneapolis  
Rodda, F. C. .... Minneapolis  
Rodgers, C. L. .... Minneapolis  
Rodli, O. E. .... Albert Lea  
Rogers, A. C. .... Faribault  
Rogers, J. T. .... St. Paul  
Rollins, F. H. .... St. Charles  
Rood, D. C. .... Hibbing  
Rose, John T. .... Lakefield

Rosen, Samuel. .... Minneapolis  
Rosenberry, B. P. .... Winona  
Rosenwald, J. P. .... Mankato  
Rothenburg, J. C. .... Springfield  
Rothnem, T. P. .... Wendell  
Rothrock, J. L. .... St. Paul  
Rousseau, Victor. .... Maple Lake  
Rowe, Arthur N. .... Heron Lake  
Rowe, O. W. .... Duluth  
Rowe, W. H., Jr. .... St. James  
Rowe, W. H. .... St. James  
Roy, Philemon. .... St. Paul  
Rudolf, A. J. .... Waseca  
Rudolf, S. F. .... Albert Lea  
Rumpf, W. H. .... Faribault  
Russell, H. R. .... Stewartville  
Rutherford, W. C. .... St. Paul  
Rutledge, J. W. .... Minneapolis  
Rud, M. B. .... Alexandria  
Ryan, John J. .... St. Paul

Salter, W. H. .... Duluth  
Sanderson, Ed. T. .... Minnetota  
Sanford, J. A. .... Farmington  
Savage, F. J. .... St. Paul  
Sawyer, H. P. .... Goodhue  
Schaaf, F. H. K. .... Hartland  
Schaefer, S. .... Winona  
Schatz, F. J. .... Rosemount  
Scheffek, J. F. .... Minneapolis  
Schelderup, N. H. .... Minneapolis  
Schlesselman, J. T. .... Good Thunder  
Schlutz, F. W. .... Minneapolis  
Schmidt, Geo. F. .... Pipestone  
Schmidt, H. A. .... Westbrook  
Schmidt, Karl H. .... Minneapolis  
Schmitt, A. F. .... Mankato  
Schnacke, R. A. .... St. Paul  
Schneider, H. A. .... Jordan  
Schneider, J. P. .... Minneapolis  
Schoch, J. L. .... New Ulm  
Schoch, R. B. J. .... St. Paul  
Schons, Edw. .... St. Paul  
Schottler, G. J. .... Dexter  
Schroeder, Charles H. .... Duluth  
Schuldt, F. C. .... St. Paul  
Schultz, J. A. .... Emmons  
Schulze, Albert G. .... Duluth  
Schulze, George. .... Minneapolis  
Schwartz, A. H. .... Duluth  
Schwyzer, Arnold. .... St. Paul  
Schwyzer, G. .... Minneapolis  
Scofield, C. L. .... Benson  
Scott, J. W. .... St. Charles  
Searles, Scott. .... Lakefield  
Seashore, D. E. .... Duluth  
Seashore, Gilbert. .... Minneapolis  
Sedgwick, J. P. .... Minneapolis  
Seeger, S. J. .... Minneapolis  
Seeley, I. F. .... Northfield  
Seeley, J. S. .... Faribault  
Seifert, O. J. .... New Ulm  
Senkler, Geo. E. .... St. Paul  
Senn, E. W. .... Owatonna  
Serkland, J. C. .... Rothsay  
Shapiro, E. Z. .... Duluth  
Shannon, Sylvester. .... Barnum  
Shaughnessy, M. J. .... Wabasha  
Shelden, W. D. .... Rochester  
Shelver, H. J. .... Appleton  
Sheppard, Fred. .... Hutchinson  
Sheppard, P. E. .... Hutchinson  
Sherman, C. L. .... Luverne  
Sherping, O. Th. .... Fergus Falls  
Sherwood, Geo. E. .... Kimball  
Shimonek, Anton. .... St. Paul  
Shrader, E. E. .... Watertown  
Shrader, J. S. .... Springfield  
Shrodes, G. H. .... Waterville  
Shulean, Nellie. .... Cambridge  
Simison, C. W. .... Hawley  
Simons, Jalmar. .... Minneapolis  
Simpson, J. D. .... Minneapolis  
Skivertsen, Ivar. .... Minneapolis  
Skinner, H. O. .... St. Paul  
Slocumb, J. A. .... Plainview  
Slocumb, Maude S. .... Minneapolis  
Smallwood, Justin T. .... Worthington  
Smersh, Francis M. .... Owatonna  
Smith, Arthur E. .... Minneapolis  
Smith, B. A. .... Crosby  
Smith, C. E. Jr. .... St. Paul  
Smith, D. Edmund. .... Minneapolis  
Smith, E. V. .... Rochester  
Smith, F. D. .... Kasson  
Smith, F. L. .... Eyota  
Smith, H. W. .... Crookston  
Smith, M. W. .... Red Wing



- Smith, Norman M. .... Minneapolis  
 Smith, P. A. .... Faribault  
 Smith, Wm. H. .... Cass Lake  
 Sneve, Haldor ..... St. Paul  
 Snyder, G. W. .... Belle Plaine  
 Soderlund, A. .... Minneapolis  
 Sogge, L. .... Windom  
 Sohmer, A. E. .... Mankato  
 Solberg, O. .... St. Paul  
 Soper, J. E. .... Norwood  
 Spalding, A. E. .... Luverne  
 Spratt, C. N. .... Minneapolis  
 Stacy, Leda ..... Rochester  
 Staley, John C. .... St. Paul  
 Stangl, P. E. .... St. Cloud  
 Staples, H. L. .... Minneapolis  
 Steen, A. H. .... Cottage Grove  
 Stemsrud, A. A. .... Dawson  
 Sterner, E. G. .... St. Paul  
 Steven, George ..... Byron  
 Stevens, F. A. .... Lake Elmo  
 Stevenson, Robert G. .... Albert Lea  
 Stewart, Allan B. .... Owatonna  
 Stewart, C. A. .... Duluth  
 Stewart, O. E. .... Bricelyn  
 Stierle, A. Jr. .... St. Paul  
 Stolpestad, H. L. .... St. Paul  
 Stowe, A. J. .... Rush City  
 Strachauer, Arthur C. .... Minneapolis  
 Strathern, F. P. .... St. Peter  
 Strickler, O. C. .... New Ulm  
 Strobel, W. G. .... Welcome  
 Strout, E. S. .... Minneapolis  
 Strout, G. E. .... Winthrop  
 Stuart, J. H. .... Minneapolis  
 Sukeforth, L. A. .... Duluth  
 Sullivan, M. .... Adrian  
 Sundt, Mathias ..... Hanska  
 Sutton, C. S. .... St. Cloud  
 Sutton, H. E. .... Cold Spring  
 Swanson, Cephas ..... St. Hilaire  
 Swartwood, F. A. .... Waseca  
 Sweeney, C. F. .... St. Paul  
 Sweetser, H. B. .... Minneapolis  
 Sweitzer, S. E. .... Minneapolis  
 Swenson, Charles ..... Brahm  
 Sykora, F. J. .... Brainerd  
 Taft, J. O. .... Minneapolis  
 Taft, Walter L. .... Minneapolis  
 Talbot, Ada E. .... Minneapolis  
 Tanner, A. C. .... McGregor  
 Taylor, C. W. .... Duluth  
 Taylor, H. L. .... St. Paul  
 Taylor, Wm. J. .... Pipestone  
 Teisberg, C. B. .... St. Paul  
 Ten Broeck, Lewis L. .... Minneapolis  
 Tennyson, Theodore ..... Minneapolis  
 Tessier, W. O. .... Oklee  
 Thabes, J. A. .... Brainerd  
 Theissen, W. N. .... Faribault  
 Thomas, D. O. .... Minneapolis  
 Thomas, Geo. E. .... Minneapolis  
 Thomas, G. H. .... Minneapolis  
 Thomas, G. J. .... Rochester  
 Thompson, Albert ..... St. James  
 Thompson, H. H. .... Minneapolis  
 Thordarson, Th. .... Minneota  
 Thorson, E. O. .... Luverne  
 Thornby, H. J. .... Barnesville  
 Tibbetts, J. I. .... Wayzata  
 Tilderquist, D. L. .... Duluth  
 Tingdale, A. C. .... Minneapolis  
 Tinker, C. W. .... Stewart  
 Todd, F. C. .... Minneapolis  
 Tofte, Josephine B. .... Pine City  
 Torkelson, P. T. .... Lyle  
 Towers, F. E. .... Minneapolis  
 Tracc, O. C. .... Clear Lake  
 Trowbridge, E. H. .... Faribault  
 Tufty, J. M. O. .... Duluth  
 Tunstead, Hugh ..... Minneapolis  
 Tuohy, E. I. .... Duluth  
 Turnaciff, D. D. .... St. Paul  
 Turnbull, F. M. .... Duluth  
 Tweedy, G. J. .... Winona  
 Tyrrell, C. C. .... Minneapolis  
 Ulrich, Henry L. .... Minneapolis  
 Ulrich, Mabel S. .... Minneapolis  
 Urstad, O. H. .... Kiester  
 Utley, J. D. .... Spring Valley  
 Vadheim, Alfred L. .... Tyler  
 Van Deboget, Lewis ..... Minneapolis  
 Van Slyke, Charles A. .... St. Paul  
 Valin, H. D. .... St. Peter  
 Valentine, W. H. .... Tracy  
 Vaughan, Geo. E. .... Winnebago  
 Vercellini, C. E. .... Duluth  
 Vercellini, G. .... St. Paul  
 Verne, V. E. .... Moorhead  
 Vigen, J. G. .... Fergus Falls  
 Vogel, J. H. .... New Ulm  
 Von Berg, J. P. .... Albert Lea  
 Voyer, Emile O. .... Minneapolis  
 Vrooman, F. E. .... St. Francis  
 Wakefield, Wm. .... Lake Benton  
 Wald, Rudolph H. .... Hastings  
 Walker, A. E. .... Duluth  
 Walker, C. C. .... Lamberton  
 Walker, G. H. .... Fairfax  
 Walsh, E. F. .... St. Paul  
 Walters, Franklin R. .... Moose Lake  
 Wanous, E. Z. .... Minneapolis  
 Warham, Thos. T. .... Minneapolis  
 Warner, E. A. .... Waverly  
 Warner, E. F. .... St. Paul  
 Warren, Edmund L. .... St. Paul  
 Warren, F. S. .... Faribault  
 Warren, J. W. .... Minneapolis  
 Watkins, S. O. .... Carlton  
 Watson, C. W. .... Minneapolis  
 Watson, F. G. .... Rushmore  
 Watson, J. A. .... Minneapolis  
 Watson, John. .... St. Louis Park  
 Watson, N. M. .... Red Lake Falls  
 Watson, Tolbert. .... Albany  
 Wattam, G. S. .... Warren  
 Way, O. F. .... Clairmont  
 Webster, H. E. .... Duluth  
 Weeks, L. C. .... Detroit  
 Weir, J. D. .... Beardsley  
 Weiser, F. R. .... Windom  
 Weiser, G. B. .... New Ulm  
 Welch, M. C. .... St. Paul  
 Wellcome, J. W. B. .... Sleepy Eye  
 Wells, E. E. .... Stillwater  
 Werner, O. S. .... Lindstrom  
 Wesbrook, F. F. .... Vancouver, B. C.  
 Westerman, F. C. .... Montgomery  
 Weston, C. G. .... Minneapolis  
 Wethall, A. G. .... Minneapolis  
 Weum, T. W. .... South Haven  
 Wheat, F. C. .... Minneapolis  
 Wheeler, M. W. .... Glencoe  
 Whetstone, Mary S. .... Minneapolis  
 Whipple, C. D. .... Minneapolis  
 Whitacre, J. C. .... St. Paul  
 Whitcomb, E. H. .... St. Paul  
 White, J. B. .... Belle Plaine  
 White, J. S. .... St. Paul  
 White, S. Marx. .... Minneapolis  
 Whiting, Arthur D. .... St. Cloud  
 Whitney, A. W. .... St. Paul  
 Whittemore, J. G. .... Donnelly  
 Whittier, R. W. .... Mora  
 Wiedow, Henry .... Worthington  
 Wilcox, Archa E. .... Minneapolis  
 Wilcox, M. Russell. .... Minneapolis  
 Wilkinson, J. C. .... Fed Lake Falls  
 Will, W. W. .... Bertha  
 Willcutt, C. E. .... Minneapolis  
 Williams, A. B. .... Wilmont  
 Williams, C. .... St. Paul  
 Williams, C. W. .... Minneapolis  
 Williams, H. L. .... Minneapolis  
 Williams, H. O. .... Balaton  
 Williams, Leon A. .... Slayton  
 Williams, Robert ..... Minneapolis  
 Williams, R. V. .... Rushford  
 Williams, U. G. .... Minneapolis  
 Willson, Hugh S. .... Minneapolis  
 Wilson, C. E. .... Blue Earth  
 Wilson, L. B. .... Rochester  
 Wilson, W. .... Northfield  
 Wilson, W. F. .... Lake City  
 Wilttrout, I. Geo. .... Swanville  
 Winnick, J. B. .... St. Paul  
 Winter, John A. .... Duluth  
 Wiseman, R. L. .... Pine City  
 Witham, C. A. .... Minneapolis  
 Witherstine, H. H. .... Rochester  
 Wolner, O. H. .... Elba  
 Wood, Douglas F. .... Minneapolis  
 Wood, Harry Gardner. .... Rochester  
 Wood, J. R. .... Hallock  
 Woodard, F. R. .... Minneapolis  
 Woodruff, C. W. .... Chatfield  
 Woodworth, Elizabeth. .... Minneapolis  
 Woodworth, L. F. .... Le Sueur Center  
 Wooster, A. M. .... Hills  
 Workman, H. M. .... Tracy  
 Workman, W. G. .... Tracy  
 Wray, W. E. .... Campbell  
 Wright, C. B. .... Minneapolis  
 Wright, C. D'a. .... Minneapolis  
 Wright, C. O. .... Luverne  
 Wright, F. R. .... Minneapolis  
 Wright, Swan G. .... Minneapolis  
 Yoerg, O. W. .... Minneapolis  
 Zander, C. H. .... St. Paul  
 Zaun, J. J. .... St. Paul  
 Zelen, Thos. .... North Branch  
 Zimbeck, R. D. .... Montevideo  
 Zimmerman, H. B. .... St. Paul

## NEUROPLASTY OF THE MEDIAN AND ULNAR NERVES\*

BY RALPH E. WEIBLE, M. D.

FARGO, NORTH DAKOTA

There are various theories as to what happens in the distal segment of a nerve after its division. From the practical standpoint this is unimportant. If the living axons can be held in apposition with those in the severed portion, restoration of the nerve will take place. Even if the trauma occurred many years before, this is still true. If my memory serves truly, it was in 1899 that I witnessed an operation on a man, performed by Dr. Justus Ohage, of St. Paul, for a severed sciatic nerve. The injury had occurred when the patient was a lad. *Suture à distance* was practiced with a successful result. Murphy cites a case which had sustained the injury twenty-six years before the operation.

By far the most of the good results have been in cases of simple suture. When it is impossible to bring the ends quite together, apposition and simple suture may sometimes be secured by flexing the limb, and holding it in that position until union has taken place. When this is impossible, we may use one of the following methods:

1. Grafting or transplantation.
2. Anastomosis.
3. Resection of bone to shorten the limb, and thus allow simple suture.
4. *Suture à distance*.
5. Tubulization.
6. Neuroplasty.

It is hard to determine which of these methods is the best.

Transplantation should be practical, but one must first find a good transplant. Three kinds of transplants have been used,—the autogenous, the homogeneous, and the heterogeneous. Heterotransplants of other tissues have not been so successful as autotransplants, and perhaps it is so with nerves.

Anastomosis is not a complete restoration of the injured nerve, but is a good method where there is a large absence of continuity or where the proximal segment cannot be found.

Resection of bone has been used successfully, but, if the gap is large, it is open to objection.

*Suture à distance* has been a favorite way, because it is easy to perform; and many good results have been obtained by this method. The objection to it in my mind is this, that it does not

surely prevent the formation of fibrous tissue along the path of the future nerve.

Tubulization is the suturing of the ends of the nerves into the ends of a segment of a blood-vessel,—vein or artery. Perekropoff (abstract in *International Abstract of Surgery*, April, 1914, p. 370) says that the nerve fibers grow through the lumen of the vessel, even when two or three centimeters away; that the growth of the nerve fibers is sometimes hindered by blood-clots and connective-tissue formation; and that the method is well adapted for small nerves. A segment of an adjacent vein is easy to secure, and Perekropoff's method should be superior to Foranmitti's plan of using formalized calves' arteries.

Neuroplasty has this main objection, that a



Fig. 1.



Fig. 2.

part of the nerve itself is used for bridging the gap. If the proximal portion is split, regeneration of the whole nerve must begin at a higher level. For this reason the restoration of function would be slower than by some other method. At present there is no way more certain of success if a long distance separates the two portions. The following case illustrates what results may be secured by this method:

Patient, Charles J., a teamster, aged 29.

History: In August, 1909, he was driving a mowing-machine. The team ran away, and he was thrown in front of the sickle. The inner side of the whole upper right arm was ground out by the rapidly moving knives. The portion destroyed included muscle, artery, and vein, the internal cutaneous nerve, and the median and ulnar nerves. The musculospiral nerve escaped because of its depth. The wound was dressed by the local physician, who cleaned out much foreign material,—dirt, grass, etc. Four or five days later the patient came under my care with a large suppurating wound, which was some weeks in closing. He then presented the following condition: a large scar extending along the inner side of

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the upper arm, and a perfectly useless hand. Any attempt to use the arm resulted in extension of the hand on the wrist with the fingers in a flaccid, partly closed position,—the "main en griffe."

Sensation was gone over most of the forearm and hand.

Operation at St. John's Hospital January 7, 1910: Incision through scar from anterior axillary fold to below bicipital fascia of the forearm. While there was some difficulty in finding the nerves, due to the dense cicatricial tissues, the neuromatous ends were eventually discovered, and the nerves freed. The upper portions were found extending a short distance below the level of the insertion of the pectoralis major, while the lower segments were found extending upwards to a little ways beyond the level of the elbow. Nearly, or quite, 13 cm. of the median and ulnar nerves were missing.

To perform the neuroplasty, it was found necessary to split both the proximal and the distal portions of each nerve to secure enough flap material to bridge the gaps. This splitting extended near to, but not into, the neuromata; and at this point careful examination was made

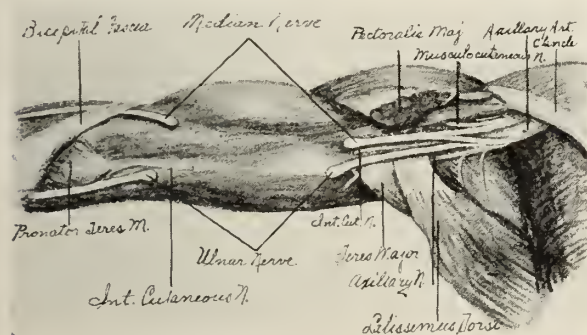


Fig. 3. From a sketch made at the time of operation. Note the absence of about five inches of the median and ulnar nerves.

to see that the nerve fibers showed distinctly clear to the end of the incision in the nerve. The neuromata were not removed; but between each two a tension suture was placed. With a few sutures the median nerve was buried in the biceps muscle, and the ulnar in the triceps. The wound was closed without drainage. He left the hospital on the third day and the stitches were removed on the seventh.

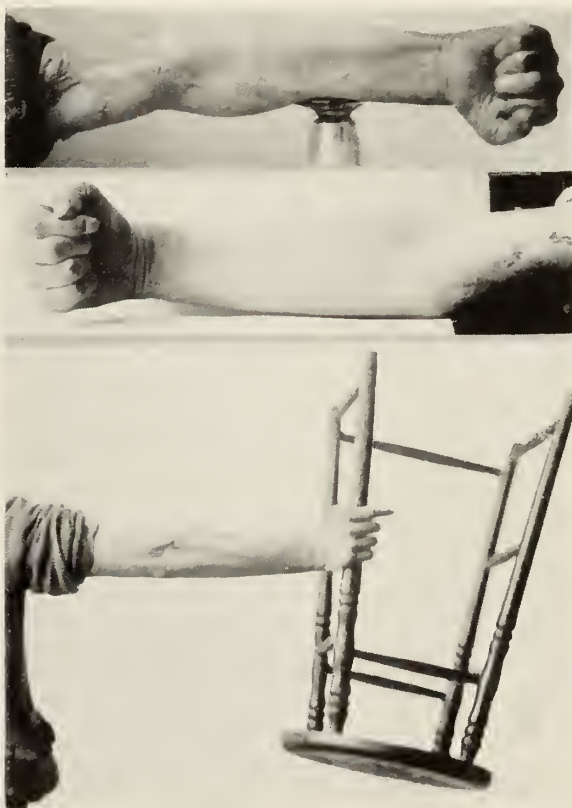
After-history: In three weeks he was complaining of tingling and burning sensations in the forearm and hand, and he said that he already had more motion than before the operation. Just what this statement signified is doubtful, for many months followed before there was any change for the better. During this time atrophy removed all of the padding about the palm and fingers; and the forearm became the shadow of its former self. It has been only in the past year, and more particularly in the last six months, that the improvement has been very noticeable. The first sensation to return came in the little finger, in the outer half of the ring-finger, and the ulnar side of the hand; and motion followed in the same order. Motion came next to the middle finger, and finally to the index-finger and thumb.

Present condition, May 1, 1914: The little, ring, and middle fingers functionate in a perfect manner. The short flexors of the index finger and thumb are normal, while the long flexors are just beginning to act. The

muscles of the arm have developed wonderfully well, and the hypothenar eminence and the ulnar side of the hand are as round as ever they were.

The ulnar nerve is completely restored; the median, nearly so. The only branches of the latter that are not fully developed are the anterior interosseous nerve and the muscular branch in the hand. These, however, are improving rapidly. The complete cure should come within the next few weeks.

It is an interesting fact that while sensation has returned, the tactile sense is still incomplete. He uses his hand well, and for the past year has handled a team of horses from his seat on a livery carriage.



Figs. 4, 5, and 6.

#### DISCUSSION

DR. FRED EWING (Kenmare): I was very much interested in what Dr. Weible said about the time for the regeneration of nerves. It brought up a case I had recently. At the time of the operation we found the nerve completely separated, except a very small fibrous cord. I think there was no nerve tissue in it. We did the plastic operation, and brought the proximal portion of the nerve down to the distal portion, with a gap of perhaps three-quarters of an inch.

I had told the patient we would expect to wait two years before we would get results, and I was rather surprised to find that the child began to get some motion after about six months. He is now under observation, and is gradually getting the use of all muscles. This was in the musculo-spiral nerve just above the elbow.



DR. WEIBLE (closing): In reply to the question of what happened to the nerve: I think he got regeneration in six months. I believe it is Murphy who says that in the forearm you may get regeneration in from six to twelve weeks. If his division was not high, he could get his regeneration fairly early. The average case is longer than that. I am going to cite a couple of cases that are typical:

Dr. J. Shelton Horsley (Southern Surgical & Gynecological Association) reported simple suture of the recurrent laryngeal nerve with cure in fifteen months.

Dr. J. B. Murphy (Clinics, Vol. ii, No. 2) reports a case of severance of the brachial plexus by a bullet, with simple suture of the ends, and cure in two years. Four months before the regeneration was complete, this case could use all of the muscles of the hand except the flexors of the index-finger and thumb. This is practically the present condition of my patient.

## WORK OF A EUROPEAN WAR SURGEON

By O. A. OREDSON, M. D., C. M.

DULUTH

In the European countries now at war there are hundreds of thousands, yea, nearly millions, of wounded; and, of course, with wounds of all kinds and descriptions, many forming a pitiable sight. I was permitted to help treat and examine several thousands of these wounded. I saw wounded soldiers from every country at war, with the exception of Servia. I would say that those who were not killed instantly, mostly recover. It is remarkable how a bullet can penetrate the different parts of the human anatomy, and cause little lasting or permanent disability, except the "dum-dum," which are very bad. A dum-dum bullet is one that explodes when it strikes an object. It will go in through an opening about one-quarter of an inch, and make an exit big enough for a man's hand; or sometimes it will tear all the flesh to pieces, leaving an entirely open wound. These bullets are extremely dangerous and therefore are not allowed in civilized warfare; nevertheless, they are sometimes used.

One favorite position of the German soldiers when attacked by the opposing force is to lie on their stomachs. In this position they can raise themselves from their elbows, and look over a small breastwork thrown up in front of them for protection. One of these men was shot from the side. A bullet pierced the arm on level of about two-thirds the upper part of the humerus, going into the chest slightly above the nipple-line, but only in the muscular part. The man had a somewhat hollow chest, hence the bullet skipped the width of the sternum, again entering the fleshy part of the chest on the other side, passing out, and again entering the arm without doing injury to any of the bony parts, blood-vessels, or nerves. It was a most remarkable escape. In fourteen days' time the man was well, and quite willing to go to the front once more.

There was another case of wonderful luck of a soldier in an engagement near Kalish. The Ger-

mans were on what they call a forced march. In these marches the soldiers occasionally sit down to relax; and, just as a company was resting, not knowing the enemy was near, one of the men was hit by a bullet which pierced the scrotum, entered the perineum and came out at the buttocks, piercing the cigarette-case which he carried in his hip-pocket. This bullet passed the pelvic floor between the bladder and the rectum with sufficient lateral slant not to injure the rectum on the left side, again passing the iliac vessels and sacral plexus, without doing any harm to any of the delicate structures. Another unusual case is that of a soldier who had lost all the fingers of both hands while taking aim over the breast-works.

Since it would be impossible to describe all manner of wounds in detail, we shall mention only a few of the most interesting, as, for instance, injuries about the face, neck, and eyes, which require special attention. Every seriously injured eye should be removed to prevent panophthalmia and sympathetic ophthalmia. There also came under our observation a large number of injuries to the eyes caused by explosions; and such injuries tax the skill of the best surgeon to the utmost.

Injuries about the lower jaw also require special attention because of the serious hemorrhage which usually results from branches of the carotid, especially from the external maxillary. In many of these cases it is necessary to tie off the external carotid, which of course requires a certain amount of skill, and should therefore be undertaken only by a well-trained surgeon.

Injury about the face in general, and especially injuries of the lower jaw, are unusually liable to infection from the wound itself, and also from infection from the mouth. Infections in the mouth often start serious trouble by extension of the inflammatory process to the epiglottis, causing serious edema, which threatens the life

of the patient, unless a tracheotomy is performed at once.

Injury to the bone is, of course, a most frequent occurrence, and generally splinters the bone into hundreds of fragments, as seen from the x-ray plates. These fractures, when put into a splint or cast, heal very readily, and seldom require to be opened to remove spiculæ or wire, or to drain. In cases where a piece of bone is missing, of course bone-transplantation is made, which usually gives splendid results, but requires a good deal of time to heal. The usual procedure is this: A piece of bone is removed

sels are bared and, with rubber-covered clamps, are caught above and below the aneurism and clamped off. The aneurism is cut off, the ends of blood-vessels oiled (to prevent shrinking), and, with a fine round needle, the vessels are caught in three places (both ends). When this is done, the ends can be pulled together and sewed, respectively, between the three guide threads. This sewing has to be done with a very fine round needle. When all is sewed, the clamps are loosened, and the blood allowed to flow. Small leaks can be taken care of by pressure over the area for a few minutes, when a clot will form and thus



from the tibia, the periosteum carefully scraped aside, a piece of bone sawed off the desired length and sewed onto the periosteum of both ends where the piece is missing. In all of these cases the most conservative method is used; for instance, for an ordinary bullet-wound very little is done, except swabbing the wound with iodine. In a few cases an abscess is formed, which requires to be opened and drained.

I saw several interesting cases where the bullet ruptured the tunica media and the tunica adventitia, which caused a dilatation, or aneurism. In these cases the procedure is very simple. The surgeon merely cuts out the aneurism; and on account of the elasticity of the vessels, they can generally be sewed together again. The ves-

stop the flow of blood. If the sewing is carefully done in the first place, it is seldom necessary to sew or lembert over the second time.

The climate in Germany is not hot, yet I have seen cases of wounded, especially those who were compelled to lie long on the field after a battle, that were literally loaded with maggots. In these, so far as it can be done, all the maggots are removed, and a solution of oil and camphor dressing is applied; and very shortly all maggots will be destroyed. Erysipelas is another scourge that the war surgeon has to contend with. As soon as diagnosed, the patient should be rigidly isolated. Infections from one patient to another can be prevented only by the most rigid asepsis.

# THE JOURNAL-LANCET

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## KANSAS' PROPOSED MEDICAL LAW

For years various medical societies have tried to improve upon already existing laws regulating the practice of medicine. Committees from medical bodies have appeared before legislatures to protest against the establishment of new examining boards, and have been wearied by the indifference of legislative committees. The result is, that many non-medical cults have their own examining boards; and, as a result of their successes, other cults are demanding equal rights.

In our own legislature the optometrists, the chiropractics, and the chiropodists are clamoring for recognition. The Governor of the State of Kansas, Hon. George H. Hodges, has initiated the first normal campaign regarding a law for the regulation of all practitioners of the healing art.

The Governor appointed an investigation commission composed of five men, two of whom were physicians, a third the dean of the law school, the fourth a former speaker of the House of Representatives, and the fifth a president of a large bank. These men drafted a bill providing for a preliminary examination of all persons desiring to practice medicine, surgery, or any other form of healing. The proposed board of examiners consisted of the chancellor of the University, the president of the State Agricultural School, and

the president of the State Normal School, ex officio, who shall examine all persons desiring to treat the sick in any way.

The general outline of the scheme looks good, and has been favorably commented on by the *Journal of the A. M. A.* It ought to be endorsed by every state medical journal, and be made a uniform law in all states, as it contains two important principles. The first is, that a single standard must be adopted for all persons, regardless of "schools," and thus all inequalities of the standards will be abolished. The second principle is, that the examination and licensing of all persons who treat the sick in any way for compensation is an *educational*, and not a medical, problem. The result would be, that all would-be practitioners must satisfy the preliminary examining board that they had attended a four-year course of at least eight months each year at some reputable professional school which includes in its course anatomy, physiology, pathology, surgery, obstetrics, chemistry, bacteriology, symptomatology, diagnosis, urinalysis, hygiene, and sanitation. All other examining boards would have to amend their regulations to make them uniform with the proposed bill.

The examining board would have to be varied in its composition according to the status of education in the State; but it could be made up of men high in educational fields.

It will be interesting to see what the Kansas Legislature does with the Governor's bill; and one may expect to hear many forceful and vigorous protests from those who practice the healing art who have no preliminary qualifications for it in any way. Imagine the consternation of the man who was formerly a good blacksmith and who proposed to heal the sick after taking a course of six or twelve weeks in some of the alleged new methods! The enforcement of such a bill would put to flight most, if not all, of the religio-no-disease adherents. It would upset the fundamentals of the Christian Scientists. Would they waste their time in getting to St. Paul, if the Minnesota Legislature undertook to pass a measure such as Kansas hopes for? But the time is coming, in spite of opposition, when a uniform medical examining law will be on the statutes; and it will be reasonable, sensible, and safe, no matter what branch of the healing art appeals most strongly to the healer.



## CEREBRAL ADIPOSITY

A current saying, intended as a slur, that certain people have "fat on the brain" is not so wide of the mark, after all. Dr. Walter M. Kraus, of New York, records the case of a man who when a boy had measles, chickenpox, diphtheria, and whooping-cough. Between the ages of three and four he fell, and fractured his skull, from which he was disabled for six months. He recovered and at the age of thirteen had Jacksonian epilepsy of a mild and infrequent type. At twenty-four he had arthritis, which lasted several years. At twenty-five his epilepsy ceased. He was a persistent beer-drinker, and at twenty-seven began to increase in weight until, in 1914, he weighed 282 pounds. His hair began to grow increasingly all over his body; he became sleepy; his appetite increased; and he lost all sexual power. Such cases are probably due to polyglandular disease; but it is not incompatible with an increase in fat cells in the nervous system. There are many similar cases in both men and women who gradually grow dull, heavy, and hairy, and have nervous symptoms. These and others who are called lazy, and who lose their competency, are probably sufferers from some disorder of the glandular system. When we speak in a slighting manner of those who are backward or below the mental level, we may unconsciously make a diagnosis that is nearer correct than we had believed.

## MISCELLANY

MINNESOTA STATE HOSPITAL FOR  
CRIPPLED AND DEFORMED  
CHILDREN

The report of this children's hospital for the year ending August 1, 1914, is before us.

The day of the establishment of this institution by an act of the Legislature (April 23, 1897) was a red-letter day in the history of Minnesota. The institution was a pioneer, in its line, in this country; it has been a model for not a few other like hospitals in sister states. It ministers to a class whose neglect was long a state and national disgrace.

This report is at once pathetic and inspiring. Fourteen less than *one thousand* children were admitted and treated in the year covered by this annual report. Some came on stretchers, some in invalid-chairs, some on hands and knees—

all crippled and deformed almost beyond hope of recovery without the treatment and care given them gratuitously by the State. One less than *five hundred* were "cured of all disease and deformity." Ninety were under treatment in the hospitals and thirty-four in the dispensary at the end of the year.

The detailed reports, covering a dozen pages of table-work, contain too much valuable information to be summarized. The report belongs in the hands of every medical man in Minnesota; and the Minnesota physician who fails to bring the institution to the attention of an indigent crippled or deformed child within his knowledge, is guilty of an irreparable injury to such child.

Dr. A. J. Gillette has been the chief of staff and attending orthopedic surgeon since the institution was established. The consultant and attendant medical and surgical staffs contain the names of over two dozen of the best known men in the Northwest; and their services are freely given to the work.

We strongly urge our readers to send for a copy of this report.

## REPORTS OF SOCIETIES

## MINNESOTA ACADEMY OF MEDICINE

The regular monthly meeting of the Academy was held on January 6th.

Dr. A. Schwyzer reported two cases of disease of the antrum of Highmore.

CASE 1.—A man; was operated on on Nov. 24, 1914, for a dental follicular cyst in the antrum of Highmore; suppuration of the antrum for one year; removal of very thick mucosa and an aberrant wisdom tooth. Patient has no symptoms left, no discharge.

CASE 2.—Cyst in antrum of Highmore from a root granulation. Large bulging of cheek; cyst contained very much cholesterine, and had a paper-thin bony wall inside the antrum. Patient was operated on on Dec. 21, 1914. Has no pain or disturbing discharge, though a free communication still exists with the mouth through the canine fossa.

Both patients were exhibited, and were examined by several of the members.

Dr. Schwyzer also exhibited a pathological specimen of a large perforating gastric ulcer at the lesser curvature near the pylorus.

Dr. Leavitt reported a case of traumatic atresia

of the vagina following childbirth, with photograph of the removed uterus, ovary, tube, and appendix.

Dr. Dunsmoor referred to a case of ascites with fibromata. He recently removed four such tumors from the abdominal cavity.

Two theses were read, one by Dr. F. W. Schlutz on "The Ammonia Coefficient in Chronic Alimentary Disturbances, due to Over-feeding with Cow's Milk"; the other by Dr. H. L. Ulrich on "Streptococciosis." The papers were discussed by Drs. Ramsey, White, Hartzell, A. Schwyzer, Staples, Geist, and Colvin.

As the Town and Country Club will be closed for a couple of months, the February meeting will be in St. Paul, and the March meeting in Minneapolis.

The name of Dr. E. P. Lyon, Dean of the Medical School, was proposed for honorary membership by Drs. Todd, Corbett, and Leavitt.

There were thirty members and two visitors present.

FRED E. LEAVITT, M. D., Secretary.

#### PARK REGION DISTRICT AND COUNTY SOCIETY

The Society met at Fergus Falls on January 6th.

Papers were read as follows: "Acute Appendicitis, with Case-Reports," by Dr. A. D. Haskell, Alexandria; "Classification, Present Status and Treatment of Puerperal Infection," by Dr. Frank Naegeli, Fergus Falls; "Local Anesthesia," by Dr. R. E. Farr, Minneapolis; "Empyema of the Nasal Accessory Sinuses, with Coronal Sections and Röntgenograms of the Head," by Dr. Joseph D. Lewis, Minneapolis.

The following were elected officers for 1915: President, Dr. A. B. Cole, Fergus Falls; first vice-president, Dr. Frank Naegeli, Fergus Falls; second vice-president, Dr. L. M. Boyd, Alexandria; secretary-treasurer, Dr. A. Mason Randall, Ashby; delegate, Dr. A. Mason Randall, Ashby; alternate, Dr. A. D. Haskell, Alexandria.

The program was one of the best ever given before this Society. We are especially indebted to Drs. Farr and Lewis, of Minneapolis, for their excellent papers.

A. MASON RANDALL, M. D., Secretary.

#### BROWN-REDWOOD COUNTY SOCIETY

The annual meeting of the Society was held at New Ulm on January 7th.

Papers were read as follows: "Puerperal

Convulsions," by Dr. Earl Jamieson; "Neo-Salvarsan in Pernicious Anemia," by Dr. M. C. Piper, Sanborn.

Reports of interesting cases were made by each member present.

Officers were elected as follows: President, Dr. M. C. Piper, Sanborn; vice-president, Dr. Earl Jamieson, Walnut Grove; secretary-treasurer, Dr. G. F. Reineke, New Ulm; delegate, Dr. Frank Gray, Marshall; alternate, Dr. L. A. Fritsche, New Ulm.

Amendments to the constitution: voted yes on both.

The mud-bath department at the Union Hospital is in full operation.

G. F. REINEKE, M. D., Secretary.

### NEWS ITEMS

Dr. L. W. Baskett, of Stevenson, is to locate in Texas.

Dr. J. W. B. Wellcome has been elected mayor of Sleepy Eye.

Long Prairie's new hospital was opened the first of January.

Dr. W. B. Foster, of Mandan, N. D., is to locate at Merkle, Texas.

Dr. N. A. Munro has moved from Bowman, N. D., to Cleveland, Ohio.

Dr. J. T. Rose, of Lakefield, has sold his practice to Dr. W. S. Hitchings, of Belgrade.

Dr. T. C. Davis, of Warroad, was married on December 30th to Miss Lulu Krueger, of Akeley.

St. John's Hospital, of Red Wing, is to have a sanatorium in connection with the regular hospital.

Dr. L. W. Meckstroth has closed out his interests in Wahpeton, and is located for the winter in Minneapolis.

Dr. H. B. Martin, of Harrold, S. D., was married the first of January to Miss Florence Laughlin, of Pierre, S. D.

Dr. B. O. Mork, of Worthington, is to spend some time in the Chicago and Philadelphia hospitals in postgraduate study.

Dr. A. E. Johnson, of the firm of Giere, Johnson & Koren, of Watertown, S. D., is to remain in Madison for a short time.

Dr. E. W. Gaag, of Browerville, has sold his practice to Dr. V. S. Cabot, of Minneapolis, and will take up postgraduate work in New York.

The health department of Minneapolis is seeking to have all milk sold in the city pasteurized. The large dealers have pasteurized their product for the past several years.

Dr. P. H. Bennion, of St. Paul, has taken the place of Dr. Frederick E. Leavitt, resigned, as president and general manager of the Midway General Hospital, St. Paul.

Dr. W. G. Crumley, of Rochester, has been appointed by the American Red Cross Society to the American Women's Hospital at Paighton, South Devonshire, England.

Dr. E. Moren has been named as chief of staff at the Minneapolis Swedish Hospital. Dr. A. E. Johnson was chosen secretary, and the other officers were re-elected from the former staff.

The Blue Earth County Society met at Mankato last month, and elected officers for 1915 as follows: President, Dr. A. E. Sohmer; vice-president, Dr. H. J. Lloyd; secretary, Dr. J. H. James; treasurer, Dr. Lida Osborn.

Dr. Cornelius Williams, of St. Paul, was elected president of the Health Legislative Bureau, and Dr. H. W. Hill, the secretary. The Bureau will have charge of all health bills brought before the Minnesota Legislature this winter.

Dr. John T. Litchfield, of Minneapolis, returned home last month. Dr. Litchfield went to Vienna a year ago. When the war broke out he went to Zurich, and after a short stay in Switzerland came to New York in September, where he remained until his return to Minneapolis.

The Eighth District Medical Society, of South Dakota, met at Yankton last month, and elected the following officers for 1915: President, Dr. Mortimer Herzberg, of the State University; vice-president, Dr. J. A. Hohf, Yankton; secretary-treasurer, Dr. James Roane, Yankton.

Chairmen of the county boards of Blue Earth, Nicollet, Le Sueur, Waseca, Faribault, Martin, Watonwan, and Brown counties have organized a committee to make a preliminary investigation of the feasibility of establishing a tuberculosis sanatorium to be used jointly by these counties.

At the annual meeting of the Waseca County Society the following officers were elected: President, Dr. F. A. Swartwood; vice-president, Dr. H. O. Hagen, New Richland; secretary-treasurer, Dr. A. J. Rudolf; censor, Dr. W. M. Cory, Waterville; delegate, Dr. H. G. Blanchard; alternate, Dr. A. J. Rudolf.

Dr. Edward R. Baldwin, of Saranac Lake,

N. Y., has written Dr. H. W. Hill, of the Minnesota Public Health Association, to correct an impression that he (Dr. Baldwin) does not place sanatoria above all other means for the treatment of tuberculous patients. Dr. Baldwin is enthusiastically in favor of sanatoria.

The Devils Lake (N. D.) District Society met at Devils Lake, N. D., on January 13th, and elected officers as follows: President, Dr. A. W. Swenson, Bisbee; vice-president, Dr. A. J. Carter, Warwick; secretary-treasurer, Dr. Drew, Devils Lake; delegate, Dr. W. C. Fawcett, Starkweather; censor, Dr. Widmeyer, Rolla.

Open-air schools for anemic and consumptive children; visiting nurses for county sanatoria; and a sanatorium for every county or district in Minnesota are among the needs in the fight against the white plague; and those engaged in this work of eradicating consumption from Minnesota are striving to gain these tools.

The National Association for the Study and Prevention of Tuberculosis appeals to medical men to take membership in the Association. The membership is now not much over two thousand, and needs to be five thousand. Dr. Charles J. Hatfield, the Executive Secretary, 105 E. 22d St., N. Y. City, will be glad to hear from any of our readers.

The Grand Forks District Society of North Dakota held its annual meeting at Grand Forks on January 13th. After one or two papers were read, the election of officers was held, resulting as follows: President, Dr. H. E. Finch; vice-president, Dr. R. D. Campbell; secretary, Dr. J. Grassick; treasurer, Dr. C. S. Marsden; delegate, Dr. H. H. Healy.

The Upper Mississippi Valley Society met at Brainerd on January 13th, with a large attendance. Officers elected for 1915: President, Dr. Geo. H. Lowthian, Akeley; vice-president, Dr. O. R. Sanborn, Bemidji; secretary, Dr. F. A. Bennett, Brainerd; treasurer, Dr. Paul Kenyon, Wadena; delegates, Drs. G. W. Beach and Paul Kenyon. A banquet followed the meeting.

The following physicians received licenses to practice in North Dakota at the January meeting of the State Board of Medical Examiners: Alexander C. McDonald, Lidgerwood; Kent Edward Darrow, Fargo; William H. Carter, Powers Lake; Harry A. Brandies, Hebron; Herbert J. Movius, Edgley; William H. Long, Dickinson; Geo. H. Hilts, Kramer; R. W. Campbell, Deering.



At the last meeting of the St. Louis County Medical Society, the committee appointed to investigate the question of birth-reports reported that many mistakes were found in the original report, stating that 25 per cent of Duluth births were not registered. These errors in finding the registration notices were due to several sources: to the fact that some cases were not 1913 babies, to differences in the spelling of names, and, in one case, to the use of an assumed name. The actual number of unregistered babies, as checked by the Health Department, is 14 (of 102 investigated). Of these 14, only 9 had doctors in attendance, and 5 had neither doctor nor midwife. Two doctors offended twice apiece; one doctor is not located in Duluth; and four others offended once apiece. These changes, we think, are all admitted by the chairman of the committee who drafted the original report. The committee consists of Drs. C. H. Schroder, C. E. Prudden, and F. A. Traun.

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#### WANTED

A physician and surgeon to locate at Judson, North Dakota. No doctor located within seven miles on the west and twenty-three miles or more in other directions. One who could start small drug-store in connection with his practice preferred. Address First State Bank, Judson, N. D.

#### WANTED

An eye, ear, nose, and throat man who is willing to work. Must be sober, competent man. State the salary expected, and give credentials in the first letter. Address the C. A. Hoffman Co., 814 Nicollet Ave., Minneapolis, Minn.

#### FOR SALE

Contract and general practice on Minnesota Iron Range in small town; bright future. Modern facilities; good terms to first-class man. A little money will handle it. Address 197, care of this office.

#### PRACTICE WANTED

In Minnesota or South Dakota town, with some future and where English is spoken. This is wanted by physician who has had several years' experience in practice, and has done laboratory and hospital work. Address 198, care of this office.

#### PRACTICE OR PARTNERSHIP WANTED

In town of 1,000 to 5,000 in North Dakota or reciprocating state, paying not less than \$5,000 a year, by physician just finishing post-graduate work. Competent surgeon and laboratory man. No real estate wanted. Introduction required. Possession Feb. 1. Address 196, care of this office.

#### FOR SALE

A \$4,000 practice in an up-to-date village of 400 in southwestern Minnesota. No other doctor and three neighboring towns have no doctor. Rich farming community. Population chiefly Norwegian and German. Good roads. Two railroads. Collections practically 100 per cent. Price for practice, including complete set of office fixtures and x-ray, \$650; or will turn it over to purchaser of my residence with office valued at \$6,000. Possession to be given April 1. Reason for selling: am going into hospital work. Address 193, care of this office.

#### FOR SALE

Minnesota \$4,500 practice; population nearly 9,000; good schools and churches; large territory; good roads; drug store building and other rentable properties at \$8,000, together with half interest in drug store; seven room residence in drug store building; rent received per month, \$80; my half share in drug store alone \$2,300; registered druggist employed. If neither share in drug store nor properties be wanted, nothing to sell except to take over practice; one speaking Swedish or Norwegian preferred; must sell before March 1st; intend to study abroad; no better proposition offered; parties interested having cash and meaning business only need answer. Income from practice and drug store, \$6,000 per year. Address 192, care of this office.

#### PRACTICE FOR SALE

In a town of 700, a practice established 13 years, and paying not less than \$10,000. Located in the best part of South Dakota. Can be had by purchasing the office equipment at a very reasonable price. All modern equipment, with an X-Ray machine. Reason for selling: death of the physician. Address Box 76, Doland, S. D.

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Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-eighth annual session opens September 28, 1914, and closes June 5, 1915. New Orleans Polyclinic, P. O. Drawer 261, Post-graduate Medical Dept., Tulane University of Louisiana.



# The Battle Creek Method in Diabetes

Diabetes, though not always curable, is controllable. Practically all diabetics can be made sugar-free and the acidosis disappears with the sugar. By a special regimen the reappearance of the sugar and the acidosis may be prevented.

The Battle Creek method is based upon experience gained in the treatment of many hundreds of cases supplemented by the observations and discoveries of Von Noorden, Falta, Guelpa, Benedict, Allen, and numerous other investigators. The essential features of the method are—

1. A thorough preliminary examination and repeated examinations comprising (a) complete quantitative examination of the urine daily, (b) differential study of the blood, (c) chemical, microscopic and bacteriological examination of the feces and study of the pancreatic function, (d) X-ray examination of the stomach and intestine with special reference to stasis.
2. Study of the patient's metabolism by the respiration apparatus to determine his respiratory quotient,  $\text{CO}_2$  tension and basal ration.
3. Establishment, by the aid of metabolism studies of each case, of a regimen adapted to the individual by determining the proper proportion of protein, fats and carbohydrates to keep the urine free from sugar. The *kind* of protein, fat and carbohydrate is considered important, as well as the *amount*.
4. The patient's metabolism is regulated by baths, voluntary and automatic exercise, photo- and thermotherapy and other physiologic means.
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## PUBLISHER'S DEPARTMENT

### THE COLUMBUS MEDICAL LABORATORY

Dr. Adolph Gehrman, the president and director of the above-named laboratory, is a man of very high scientific attainments, with a keen sense of professional ethics. He believes that the medical laboratory can fulfill its highest mission only when the laboratory man becomes, in a large sense, the consultant of the physician. To be such he must possess clinical knowledge and skill, as well as technical chemical knowledge and skill.

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### WHITE SULPHUR SPRINGS

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The baths are under the supervision of Dr. G. D. Kahlo, formerly Professor of Medicine at Indiana University. The Greenbrier is under the direction of Mr. Fred Sperry of the Hotel Plaza, New York, and the Copley-Plaza, Boston. Mr. J. H. Slocum is the resident manager.

### AT LAST—AN ANTIDOTE FOR CORROSIVE-SUBLIMATE POISONING

Accidents will happen, even in the best regulated families. In spite of all precautions, some one will, once in a while, accidentally or purposely, get hold of some mercury bichloride, and swallow it in mistake for headache tablets, or take it with suicidal intent, and then it is up to the doctor to give an antidote, and to give it quickly. Heretofore the physician has been "up against it" in this matter of corrosive-sublimate poisoning; for, up to the present time, there has been no specific, ready antidote upon which he could rely. But this is happily no longer the case. Dr. Thomas Carter, of Chicago, has devised a genuine chemical antidote for bichloride poisoning, and no doctor need feel helpless in the presence of this emergency, if he has a supply of Carter's Mercury Antidote at hand. But, of course, the crucial thing is to have it at hand; for it is

one of those cases where minutes count. Preparedness and quick action will now save many lives which formerly had been lost by this dread poison, and will build up your reputation. Don't be caught napping, doctor. Get a supply right away from the Abbott Alkaloidal Company, of Ravenswood, Chicago. On your suggestion, your druggist will no doubt carry in stock Carter's Mercury Antidote, for your convenience in prescribing. Ask him to do so.

### A NEW DEPARTURE IN THE DISPOSAL OF HUMAN WASTE

The closet problem in the building without a sewer is about the biggest of the problems in sanitation, as well as in the matter of comfort and convenience. An outdoor closet is a very grave menace to public and individual health, and is the greatest inconvenience and discomfort of life in a cold climate. Can this problem, ever increasing in importance, be solved?

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In the absence of a water-flush, the waste of a family is not large; and the solid part of this waste is so treated and liquified in this closet as to render it easily and safely disposed of in the earth. Experts in sanitation have examined this system, and do not hesitate to say that it is not only much superior to anything yet devised for residences, hospitals, and public buildings without a sewer system, but it fairly meets all the conditions encountered in the problem of the safe disposal of human waste.

The price of this closet is moderate, and well within the means of the ordinary home owner. That none but the very best of material enters into its construction is vouched for by the officials of the company.

THE JOURNAL-LANCET recommends the most thorough investigation of this system by all physicians who are confronted with this problem, in their own or their patients' homes; and they may rest assured of courteous treatment being accorded them at the hands of this company.

### BARLEY FLOUR AS AN INFANT FOOD

Two things have probably been the principal cause of the neglect on the part of physicians of barley as an infant food. First, the price of barley flour has been unduly high, owing to the fact that for years past only one brand of this flour has been upon the market, and that is made in England, mainly from American barley, thus causing it to cross the ocean twice. The added monopoly did the rest. Secondly, barley has been so long and so generally recognized as the one cereal that is first tolerated by the stomach and bowels after serious sickness and during invalidism, that barley gruel and porridge have been considered, in the main, as a medicine, and not as a food.

As a matter of fact, barley has a high caloric value, as compared with other cereals; and children's physi-



icians and nurses, and sometimes mothers before physician or nurse, have found that a very young baby may be fed a weak barley water gruel once or twice a day for a couple of weeks while nursing, and then taken from the breast, put onto a stronger gruel, with a small amount of cow's milk added, with absolutely no disturbance of the digestive tract. In all such cases, if the infant is taken from the breast because of the mother's health, it will invariably improve rapidly, in both strength and weight on the barley food.

The fact that "Cream of Barley" has found a ready sale as a breakfast food, is sufficient to show that barley should no longer be considered as a drug; for it is a food, pure and simple. The adult who has been compelled to abstain from food for a considerable time because of serious sickness, can testify to the delight that his first dish of barley gruel or jelly gave him, and to the further delight that no distress followed.

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## MEDICAL EDUCATION AND THE MEDICAL PROFESSION\*

By E. P. LYON, M. D.

Dean of The Medical School,  
University of Minnesota

I propose, first, to advance certain self-evident propositions and state the almost self-evident conclusions from these propositions. I propose, secondly, to bring to your attention those movements in medical education, particularly in our own State University, which are founded on the conclusions derived from the primary discussion.

My first proposition is this: *Medicine is an art.* In this company we may consider this statement axiomatic, and proceed to the conclusions or corollaries which follow.

If medicine is an art, it has its own peculiar technic, like all the other arts. Technic is a method of doing something. It is intelligence put into action. It is knowledge reflected to the fingers. Now, no one ever learned a technic except by practicing it. One might be taught to the last detail the theory of painting or dancing or bicycle-riding. He could not do one of these things. He must actually work at it himself until he establishes that co-ordination of living mechanisms under intelligent control, by which the thing is done. In medicine the same is true. No school ever made a doctor. Every doctor made himself. Where then does the school come in? Exactly in this: It furnishes the material environment and equipment, the mental stimulus, the examples of finished technic for observation and imitation, and, above all, the criticism of experts, under which alone such a technic as that of medicine can be accurately and quickly at-

tained. The teaching hospital is the place, above all others, where these conditions are found. *Ergo*, the argument leads to the conclusion that such hospitals with all that they imply in equipment, organization, and patients, must be provided, if the art of medicine is properly to be passed on from generation to generation.

There is another side to medicine considered as an art. Its technical procedures are carried out on living human beings. This material is very precious. Men in the past made good doctors out of themselves, but at what cost to their patients will never be known. "Medicine," said Astley Cooper, "is improved by suffering and advanced by murder," a statement which will always contain some elements of truth. But every consideration nowadays demands that the young practitioner be sent forth to work independently only when he is reasonably proficient in the technic of his art, in other words, when he is "safe." This idea, that the medical graduate shall be not only theoretically but also practically trained, has led almost to a revolution in medical education. It has entirely changed our ideas as to what a medical school in its hospital relations should be. Before we consider the school in detail, however, let us develop one further thought of medicine as an art.

By the esthetic element in art we mean, broadly stated, that quality in it which arouses a feeling of pleasure or satisfaction. In the fine arts the esthetic feature is predominant. But any technical accomplishment may call forth something

\*Read at the 46th annual meeting of the Minnesota State Medical Association, St. Paul, October 1 and 2, 1914.



of this feeling. Ty Cobb is an artist as much as Caruso. Now, I believe that the medical artist also must appeal to the esthetic instinct. He must satisfy in order to serve. It is not enough to satisfy himself. The painter who satisfies only himself may decorate an attic. The singer who satisfies only himself may warble in the wilderness. The doctor who satisfies only himself—but you see right away that “there ain’t no such animal.” Couldn’t be!

Doctors as artists must satisfy the esthetic demands of their customers, or cease to be doctors. The Indian medicine man satisfies by incantation and pounding a drum. The predatory fakir appeals to superstition and ignorance. Christian Science attempts to satisfy by isolating the soul from the nervous system. Too frequently in the past the physician has rested his ability to satisfy upon that vague thing called personality; on being a “good fellow”; on pretense and sham. We might call this the impressionistic method in medical art. The modern physician, however, tries to satisfy by appealing to the broadest and best trained minds,—to that common sense which someone has defined as intelligence well insulated from the feelings. To do this he must really know, and really be able to do. He must be an honest tradesman. He must “have the goods.” We might call this realism in medical art. At any rate, my conclusion from this line of thought is, that a doctor can only satisfy others and be satisfied with himself provided he is thoroughly imbued with a love of truth, and knows and loves and does only the best that his art affords. I further maintain that the tendency to deviate from the standards of honest work is most likely to be avoided by physicians who have long associated with institutions and men where and by whom the highest ideals are rigidly maintained. The argument for the highest type of teaching organization is apparent and need not be put into words.

But one may draw a distinction among the arts when one considers the foundations on which they rest. *The art of medicine is founded on natural science.* This is the second axiom of this paper. What are its corollaries?

Science is accumulated and classified knowledge or truth. It is that which bears the examination of the senses; which may be turned over and looked at from all sides, tested by trained observers, and always receives the O K stamp of the intelligence. Chemistry, physics, and biology are the sciences which deal with the materials of the

world, dead or living. These sciences are far from perfect—just beginning in fact. Nevertheless, they constitute an immense accumulation of facts, and at least a fair beginning of rational understanding and classification of these facts. Even an elementary familiarity with these sciences demands long and serious study. How different, then, must be the education of the physician, artist though we may call him, from that of the violinist, for example, who needs know nothing of the physics of vibration or the mathematical laws of harmony, provided his ear is true and his neuromuscular system capable of development! How different the time of life for beginning the technical training of the artist in medicine and the artist in music! How different, moreover, the equipment and organization of the school in which these two artists are to be trained! It is from its scientific demands rather than from its artistic side that medical education has become so arduous, complex, time-consuming and expensive. In the old days the art of medicine, like that of painting or piano-playing, might well descend from single master to single pupil. The “tricks of the trade” (or what I have called the technic of the art) and practice in these tricks made a physician. But gradually not only were the foundation branches enlarged and made truly scientific, and new sciences, such as bacteriology, evolved, but also clinical practice itself approached a scientific rigor before utterly unknown. The methods of teaching, the place and equipment and materials of teaching—all became correspondingly complex. The old preceptor, heroic and beloved figure of an earlier age, went away with the stage-coach. The modern scientific medical school became a necessity.

In this necessity three elements are involved: first, the material equipment for science training, including buildings, laboratories with proper apparatus, hospitals with proper equipment and adequate patients; second, the faculty, who should be men of exceptional training and high character, active in productive scholarship, and specially endowed as leaders and teachers; third, the library, which is the accumulated capital of science whose wise investment gives life and power to teaching and research. All of these essentials to science-training are hard to get and very expensive. The individual student cannot get them for himself exclusively. They must exist, and therefore must be provided through some form of co-operative effort. What more natural than that the co-operative unit supplying these facili-

ties should be the State? Is the furnishing of these facilities for the training of physicians a legitimate function of government? Before we answer that, we will take up a third proposition as axiomatic as the first two.

*Medicine is a public function. The physician is a servant of the State.* This is true more than for all other professions, even including law. The condition arises partly from legal enactments which place various positive duties upon doctors. It arises still more from custom, more binding perhaps than formal law. I need not give examples. You who have driven miles at night to attend upon a sick poor man know how different are your duties as fixed by custom and moral obligation from those of the other trades and professions.

Moreover, the health of the people is the most valuable asset of the State. The health of the people depends very largely on the physicians who serve them by attending either to their individual needs in private practice or to those environmental factors which constitute the field of public health. The value of these services to the State is many times greater, merely statistically considered, than all the material compensation which the medical profession receives.

We may therefore from all our axioms claim, without fear of successful contradiction, that the training or education of medical men should be carried on at public expense. Fortunately, in Minnesota the citizens as a whole do not need this fundamental demonstration. Medical education is an accepted part of public policy. What we need to do is to see that medical education is more adequately and fully supported. It is the duty of the medical profession, as that body of citizens who most clearly recognize this need, to urge it emphatically and constantly. This is an altruistic and public duty. But their interest does not stop here. There are selfish reasons for the same action, dictated by the nature of medicine and the individual and collective welfare of the profession. I found those on my fourth axiom:

*Medicine and medical science are constantly progressing.* They are going forward very fast. This has two results of importance to the active profession. First, it is only by constant study that the individual practitioner can keep abreast of the times. Something can be done by reading, and by meetings for exchange of experience, such as this today. But new technic, like the old, can be perfected only by practice, and this practice for the average man is best attained by observa-

tion and imitation. This means that there must be places where medical practitioners may go for further training. The materials and methods essential for this work are the same as those required for undergraduate teaching. What, then, is more natural than that the University Medical School should broaden its facilities and open its doors for this extension of medical teaching?

A second inevitable result of the progress of medicine has been the rise of specialism. No man can reach the highest perfection in all parts of medical practice. If he desires to excel he must concentrate on a single field. Shall the intending specialist go out like the pioneers, and blaze a trail for himself? When one considers that the forest through which medical trails are blazed is composed of human beings, one hesitates to recommend the pioneer methods, if any other can be found. Moreover, to continue our metaphor, how few pioneers really break through to the hoped-for goal? How many, perhaps hardly knowing it, remain mere hewers of wood in the midst of the forest? The better way surely is that definite paths or courses of study be laid out, and that travelers be conducted toward specialism under the guidance of competent leaders. The universities have done little to provide such leaders and such courses of study; but that the need exists there can be no doubt. Our conclusion is, that the medical profession has a vital interest in medical education, because the education of the average medical man is never finished and because the desirable specialization of a considerable number demands facilities and organization. The practitioner who is not interested in medical education is not interested in medical progress. He is not alive to the future of the profession. He is not even keenly alert to the best welfare of the present generation of doctors or to his own selfish interests. On the other hand, the medical-teaching institution which is not reaching out to assist the active profession, is falling short of its possibilities. It is like a water-engineer who should labor strenuously at the source of supply and pay no regard to the adequacy and purity of distribution. All medical operations, whether in private practice or in public health or in medical education, should really be one magnificent campaign of co-operative effort. This Association should be the headquarters and general staff for this great campaign in the State of Minnesota. The State University should be your recruiting-station, the training-camp for new soldiers and for special details, the

proving-ground where new weapons are tried out, and the permanent encampment to which all may come to perfect themselves and renew their inspiration for the warfare against disease. The State Board of Health should be your strongly supported outpost. These are conclusions that I draw from the theorems which form the basic substance of this discussion.

As my second duty I take a brief description of the activities of the Medical School of the University of Minnesota. I shall leave details to be brought out in the discussion.

We are maintaining an undergraduate department ranked as A+ by the American Medical Association. On the laboratory side we are, on the whole, adequately housed, and need to give ourselves to internal development rather than to the planning of building extensions. On the clinical side we have, like nearly every school, our greatest problem. While cordial relations are maintained with the municipal hospitals of Minneapolis and St. Paul, and while the clinical facilities enjoyed there will always be valuable, it is more and more apparent that proper fundamental clinical instruction, and the personal contact with disease, and the scientific atmosphere in which the student's clinical training should be begun, can be secured only in a hospital under full control of, and in close association with, the laboratory sciences. The Elliot Hospital is a good beginning, and one of which the State may be very proud, for not only does it serve well the cause of medical education, but also it serves directly the people of the State. Its organization and rules are wise, for it has no pay-department and receives only charity patients referred to it by physicians of the state. But it is wholly insufficient to meet the needs of a great school. Our hospital side is our weakest side, and every year students leave us or pass us by for the greater centers of population. Our hospital capacity should be doubled or trebled, nor should the expense of this be charged narrowly to medical education, for, as I have intimated, the money expended goes back to the people more directly than any other University expenditure; and in this statement I will not except agriculture, usually accounted a most practical department of educational activity. Our need for hospital extension, long apparent, is rapidly becoming acute. Our classes are growing. This fall we have seventy-five freshmen. A year ago we registered sixty-five. A year before that forty-seven. Moreover, if we are adequately to do the great

work in postgraduate education, of which I shall presently speak, we must have a large, varied, and active service in every clinical department. Of such we have only a beginning in the three main departments. The specialties for lack of space are almost unrepresented.

We believe that the profession, as an organization and as individuals, have every reason, both altruistic and selfish, for backing the medical school in the modest request it is about to make for the extension of its clinical facilities. We solicit your investigation of our needs, and your assistance in the movement to have these needs properly taken care of by the authorities of the State.

Regarding our undergraduate instruction, I shall add only two further points in passing. We have recently revised our curriculum with the aim in view of securing more spontaneity and scope for individual development, more opportunity for students to proceed in accord with their individual qualifications, and a wider range of responsibility for both students and instructors. It is too early to see the results of the change, but we hope that they will be good. The second important change in methods of instruction is the introduction of the clinic clerkship system, by which each senior gets half a year of daily service in the wards of the hospital, where he is occupied with the intimate and detailed study of the phenomena of disease. From this also we are hoping for good results.

I now come to the discussion of those things which we are attempting to do for the physicians of the State and of the Northwest. In the first place, our laboratories are open, and all their facilities available, to any physician who has a special problem to work out. No charge is made except for material used, and our trained workers will give every assistance consistent with their other duties. A small but, we hope, increasing number of men is taking advantage of these opportunities. There surely ought to be many among the progressive physicians of this State who have ideas, and the ability and will to work them out.

Secondly, for those doctors who wish to spend a time in "brushing up" or in clinical studies we are doing all we can. At any time of the year arrangements can be made for advanced work in dissection, pathology, pharmacology, and so forth. Our clinics are always open free to physicians who wish to spend a short time as visitors, or for a small charge if they desire to register as



postgraduate students. In the summer we arrange courses specially adapted to practitioners. While these efforts are in their infancy, we feel that they are important; and already, particularly in certain departments, we believe we offer better opportunities than many of the so-called poly-clinics.

It is the hope of many of us that within the next year all the clinical facilities of the Twin Cities, whether connected with the University or not, may be unified and laid out in a definite program, so that a doctor coming here may easily learn the who, what, where, and when of clinical instruction in the various hospitals. Would it not be worth while for a committee of this Association to undertake this task of codification and publicity?

Finally, I come to that which is true graduate work,—the training of thoroughly grounded, trained, and productive workers in the various branches of medical practice. Here, we believe, we have taken steps of the utmost importance, and of far-reaching effect in medical practice and in medical education. In the first place we shall endeavor to bring about that combination of teaching and advanced work which is so effective in the scientific laboratories all over the country. I mean the fellowship plan by which the qualified and willing young worker receives a small stipend, for which certain service is required, but under such an arrangement that not only the service itself conduces to his development, but also that the larger share of his time is available for study and work in his chosen field of specialization. For each of these men a special course will be laid out, usually of three years' duration. Each man will be expected, not only to become technically proficient in his specialty, thoroughly acquainted with its literature and well grounded in ancillary branches, but also to produce such evidences of original research as will indicate independent power. To those who complete such a course an advanced degree will be granted. The announcement of this plan created great interest, and applications for our fellowships, of which we have, to begin with, only six, but hope eventually to have thirty or more, came in from all over the country. To help out the situation, certain scholarships granting free tuition, but no salary, have been provided. Arrangements have also been made for graduate students who desire to enter these advanced courses on a tuition basis. If we can swing this thing, gentlemen of the Association, we have

solved the problem of specialistic education, and, I think, have also solved the more difficult problem of providing qualified leaders of research and teaching for future places of high responsibility in the medical schools of our country.

I pass over what we are trying to do for public health. I pass over our unusually strong school for nurses. In conclusion, let me repeat what I said to you at your banquet a year ago: The state medical school is your school. If it were not for the medical profession of this state, present and prospective, the school would have no reason to exist, and it would not exist. What are you doing for the school that you own? You cannot help it by harboring old personal animosities. You cannot help by neglect or aloofness. You cannot help by a narrow view of public need or public policy. You *can* help by making yourselves acquainted with the school in every respect,—its activities, its needs, its aspirations, its officers and teachers. You can help by sending the poor sick people of your community to the University Hospital. You can help by suggestions and friendly criticism. You can help in all these ways and others. Will you? Co-operation is the watchword of the day. Co-operation means working together.

#### DISCUSSION

DR. C. M. JACKSON (Minneapolis): Dean Lyon has outlined in a clear and forcible way the fundamental principles of medical education; and it should be a source of satisfaction and pride to every member of the medical profession that this State has already progressed so far along the lines which he has indicated. If we look back over the past, I believe the most important factor which has to do with making possible progress has been the unification of medical education in the University, which took place in 1908. That made possible the concentration which has led to the marvelous progress made within the last few years in so many various lines. It has made possible, for instance, the building of laboratories, buildings and equipment in the fundamental branches which will compare favorably with those of any other medical school in the country. It has also made possible the development of a hospital which, although at present inadequate, will, if the present plans for its extension are carried out, make the clinical facilities similarly comparable to the best in the country.

There are a large number of other lines which might be mentioned along which Minnesota has been a pioneer in medical progress. Let us take, for instance, the entrance requirements. Minnesota was one of the first medical colleges in the United States to establish the requirement of collegiate work. Only five schools required it in 1907; and to illustrate how rapidly things have progressed in the meantime, it is of interest to note that this year eighty-four schools are making that requirement. Practically every reputable school in the

country now requires this, but Minnesota was among the leaders. That requirement has also made possible many other things, such as a better curriculum, which is important in many ways, some of which Dean Lyon has mentioned.

The interne year which has been added is also a progressive step of great importance, and Minnesota was the first school in the country to establish the requirement of an interne year, in 1910. Other schools have followed the example of Minnesota.

The importance of increasing the facilities for post-graduate work has been mentioned by Dean Lyon, and I think you all realize the importance of systematic training for specialties as a thing which has long been needed. Minnesota was the first school to take definite steps in putting it on a systematic basis. It is probable that this plan will be extended so as to develop into one of the greatest things which the school has attempted.

There is one thing, however, which I believe is even more important; and that is the proposed step in establishing a School of Public Health in the University of Minnesota. We have already a most efficient and active State Board of Health; but it has lacked the support it should have to carry forward its work. There is a growing realization of the importance of this branch of work, and if the State University, in co-operation with the State Board of Health, can establish a school to train health officers, and to forward this important movement, it will be perhaps the most important thing in the line of medical education which has yet been attempted.

In summarizing, then, I will simply say that we are proud of the various lines of progress in medical education in which Minnesota has been a pioneer. We have just begun to open up the various fields that are possible. The opportunity is before us, as Dean Lyon has said, of making still more improvement and rapid progress in the future. The thing for us all to do is to put our shoulders to the wheel and to help by co-operation and active support in carrying out these various lines of progress in medical education.

[Dr. Beard's discussion, extended to the form of an article, appears on another page.—THE EDITOR.]

DR. A. D. HIRSCHFELDER, (Minneapolis): Dean Lyon, Dr. Jackson, and Dr. Beard have told you so many things about our University Medical School, and so much about the art of medicine, and the necessity for the development of our clinical laboratory, with all of which I heartily agree in every detail, that there is hardly anything left for me to say. However, I would like to say a few words to indicate to you how we are trying, in the laboratory branches, to give the laboratory subjects a practical application. A good many members of the medical profession seem to feel—certainly, they do in the east, with which I am more familiar—that there is a certain antagonism between the science and the art of medicine; that in making one's choice as to which field he will adopt, he may be reminded of Mark Twain's toast, "To our wives and sweethearts, may they never meet"; that the science and practice and the art of medicine may never meet, or shall not meet in the same individual.

Now, it is our motto in our work at the University of Minnesota, to make, as far as possible, our art of

medicine practical; our practice scientific; and our medical science both practical and artistic. To illustrate just what I mean from the Department of Pharmacology, with which I am most familiar, we aim in that subject to teach our students, as far as possible, the scientific aspect of their training upon conditions, not upon the lower animals, but so far as possible upon the conditions which approach as closely as can be approached in animals to the clinical condition. We use animals, because we wish to avoid the condition which Sir Astley Cooper so graphically described as educational murders. We want our students to be able to approach their lessons with sufficient familiarity with therapeutic procedures that they will not murder them. We give our students, as far as possible, a preliminary training in the use of anesthetics upon animals, so that, by the time they have killed half a dozen rabbits, they will avoid their first few deaths in human anesthesia. Still further than that, we aim also to give students practice in intravenous injections upon a model, so that they will acquire the technic of working upon the model, and it will not do any harm if they do not enter the vein or pass through it. We aim to duplicate clinical conditions, and give the students their practical first-hand contact with the drugs, upon not merely the normal, but also upon the abnormally acting, organs. For instance, we have striven to conduct experiments which show the action of digitalis, not merely upon the regular heart, but also upon hearts which are made irregular. When we have animals in proper condition, we conduct small obstetric clinics on cats and rabbits to show how ergot and pituitrin act upon the pregnant uterus. We aim to give them, as far as possible, first-hand knowledge of all drugs by taking the drugs themselves in the regular therapeutic doses. We do not, however, insist upon croton oil. (Laughter.) So much for the general type of instruction in what may be called the purely scientific side.

As to the prescribed work, there I agree very largely with what Dr. Beard has called attention to, namely, that instruction now is largely individualistic, and we are favoring as far as possible the elective system. We encourage students to select for themselves the particular branches they wish; and this applies not only to pharmacology but to other branches as well. We encourage them to map out for themselves or to indicate for themselves the lines in which they are most interested, subdivisions of the branches; and we map out for those going into special lines of study the particular types of drugs and organs which are in close alliance to the specialty which they hope to enter. For instance, we will map out lines of investigation for prospective specialists in ophthalmology. We will map out for them a course in investigation, or study upon animals of drugs which particularly affect the eye. We will give them an opportunity to study the development of ophthalmia under the effect of irritants, and other conditions which can be experimentally produced upon which the drugs act, so that we approach as closely as possible to the development of clinical conditions. So much for the scientific aspects which all of us are striving to develop in our students, but we are trying not to neglect also the art of medicine. We are trying to teach all of our students that they ought to appeal to the esthetic, to give all color and flavor to their medicines so as to disguise the unpleasant flavor of the sci-

entifically active preparation under esthetically well-flavored disguise.

There is one other point I would like to call attention to in regard to our duty as medical educators, and that is this: We must teach our students not only for the present but also for the future. Every one of us who has been out of school for a few years has seen that what was taught to him as the right and the best practice in the day when he was a student, is utterly wrong according to the present-day practice. The science of medicine has advanced ahead of him. We must, as Dr. Beard has said, provide opportunity for

the men who have gone out. We must do one other thing, and we are trying to do it. We are trying to train our students to prepare them for the changes that will come in the next few years, to give them an attitude of criticism and of initiative and of preparedness for these changes. We must, and we are trying to, train them so as to be prepared, as far as possible, for the new advances in science which are to come, so that we shall turn out from the University of Minnesota, not only men who are well trained today, but men who will change with the times and who will be well trained ten years from now. (Applause.)

## THE STATUS OF MEDICAL EDUCATION\*

### A DISCUSSION OF THE ADDRESS OF DEAN E. P. LYON UPON "MEDICAL EDUCATION AND THE MEDICAL PROFESSION"

BY RICHARD OLDING BEARD, M. D.

Secretary of The Medical School  
University of Minnesota

The subject-matter of Dean Lyon's address is so large that, broad as his treatment of it is, it cannot be covered within the limits of a single paper. To listen to it is to be stimulated—the best office of any such effort—to so many departures of thought that the attempt at immediate discussion is embarrassed.

I cannot agree with Dean Lyon that the medicine of today is merely an art. A science it is, in itself, not because it is based upon certain fundamental sciences, but because its clinical superstructure is being built upon essentially scientific lines.

Observe, it is being built. Medicine and medical education of today are in process of building. Their structural elements and their structural design, their technical equipment and the quality of their output, are alike new. The suggestions of a new birth, of a real renaissance of medicine, are many.

1. Medical education has a new viewpoint. It has not lost, nor suffered, obliteration of the viewpoints of the past; but it has reached new summits, whence a broader vision breaks. From the various chemic theories of early Medicine, the transition was marked to the anatomic period, to the study of form and relation, to the picture of the human synthesis; thence, it swung over to the pharmacopeial period, the long day of the variant drug treatment of disease, perpetuated by the repetitional

rise of successive theories of remedial action. Later on, it suddenly caught the bacteriologic viewpoint, that happy departure toward the discovery of the micro-organic causes of disease. Again, it turned to the pathologic method, to the structural results of invasion or the alterations incident to perverted function. So definite, for a time, was the absorption of the profession in the problems of disease-causation, so purely objective was the study of disease-consequences, that therapeutics was almost lost sight of, and an actual therapeutic nihilism threatened to paralyze remedial effort. For twenty years past, in both these wide fields, the microscope has been the illuminator of Medicine; and it is but recently that it has yielded place to a new medium of investigation. The new viewpoint is a physiologic one. It is the method of functional interpretation.

Today the older viewpoints are being refocussed upon this new "light spot," this *new vital* of modern Medicine. Anatomy has adopted the functional approach to the study of gross or microscopic structure. Physiologic chemistry makes many of its analyses and syntheses *in vivo*. Therapies are based upon the physiologic actions of remedies and the physiologic reactions of the animal organism. The bacteriologist is as much concerned with immune bodies, with complement and antigen, as he is with the isolation of bacterial forms. The pathologist is learning to interpret and to express his findings in physiologic terms. Clinical diagnosis follows

\*This discussion of Dr. Lyon's paper, presented before the Minnesota State Medical Association, has been revised and extended at the suggestion of members of the Association.



physiologic paths. Surgical interference seeks physiologic sanction, and looks to functional results.

2. With the development of the new science and with the attainment of a new viewpoint of Medicine, comes the need of a new type of the student of Medicine. Vocational impulse is rising within the embryo medical scientist earlier in his career. His pre-medical training must be more definitely adaptive. Scientific drill must cultivate in him the mental initiative upon which the successful pursuit of elective study depends. An intellectual menu, *à la carte*, is the ideal dietary of the mature mind, but it has its dangers for him who has not learned to masticate his thought-material, and who fails of the absorption of his mental concentrates. Indigestion is his inevitable fate. Intellectual marasmus may co-exist with an overload of knowledge, as somatic marasmus may coincide with an habitually full stomach.

3. There are new methods of medical teaching in the making. Mass treatment is giving way to individual training. Subjective is yielding to objective study. Laboratory method obtains throughout the entire course. The clinician has become a laboratory worker, and the teaching-hospital is his indispensable laboratory. So essential does the persistent, personal contact of the pupil with his objective appear, that the University of Minnesota now demands of its medical students a hospital internship as a prerequisite for the degree.

4. So co-extensive with life has education come to be that the University of today should assume the obligation of "following up" its graduate body. Modern Medicine is on so swift a march that its moving ranks do not merely pass by; they pass quickly over him who halts. The Graduate School in Medicine offers the invitation to the graduate to keep moving, the opportunity of occasional research, the extended and adequate means of specialization. The creation of graduate scholarships and teaching fellowships at the University of Minnesota is an opening for the fit training of specialists in Medicine, to be guaranteed by the University's advanced degrees.

5. The Medical School of today has taken on a new charter, and has assumed new obligations. It consists of a great group of laboratory units, of which the teaching-hospital, owned and controlled by the teaching-institution itself, is the most essential item. Large

endowment or generous State support are its necessary nutriment. It follows inevitably that the University School of Medicine is the solely efficient type. The private medical college, with its meagre equipment and its invisible means of support, is a survival—soon to be a rare survival—of an educational day that is dead.

6. Medical education has established new social relations. The control, not of the practice alone, but of the preparation for the practice of medicine, has come to be regarded as the fit function of the State. And if it is to be controlled, why should it not be conducted, as are other phases of education, by the State? Minnesota is a subject of nation-wide congratulation that she has unified medical teaching and centralized it in her great State University. The obligation is upon her to fulfill that function to the full.

7. The inevitable corollary of these things is the evolution of a new type of medical teacher, and the development of a distinct vocation in medical teaching. The medical educator of today is called to teach, to enter specifically the ranks of a teaching-profession. The demand for him is still new, and the supply is meagre. In many fields, fit men are scarce to the very famine of the schools. The call to forego the large rewards of professional practice is not an appealing one to many ears. The devotion of even a major share of the teacher's time to the demands of the school deters all but the very few who find themselves unfit for practice or who cherish a larger love for teaching and investigation. And scant salaries, offered here and there, do not tend to increase the number of devotees. Nevertheless, the medical educator is becoming a distinct personality. His essential qualities are definable. A minimum of instructional method, a scientific order of mind, a thorough scientific training, an exhaustive knowledge of his particular subject, and the free gift of communicability,—rarest of pedagogic virtues,—are his prerequisites. In large numbers he has not yet arrived, but he is surely on the way.

8. The men and women of Medicine, and, particularly, those who are medical educators, have a new relation to the body social. The teaching duties of the profession have extended to the enlightenment of the public. Intelligent confidence is the keynote of service between

doctor and patient; and, similarly, is intelligent frankness the keynote of service as between the profession and society. Medical publicity is the order of the day. The secular press is a medium of medical knowledge. Medical educators are its purveyors for the safety and the satisfaction of the people. The old ethical ban upon the physician's freedom of discussion in

the social gathering, upon the public platform, or in the columns of the daily press, is out of date. The teachers of Medicine are called upon to organize an extension-system for the education of the community in matters of health and disease. It is a large mission which must crucially test the fitness of the profession for its social function.

## BIFIDA, CRANIAL AND SPINAL, WITH A REPORT OF FOUR CASES\*

By JOHN D. TAYLOR, M. D.  
GRAND FORKS, NORTH DAKOTA

In a general practice of twenty years I have encountered four cases of meningocele,—two of the cranium and two of the spine.

In conversation with many of my fellow practitioners I find this number is more than is observed by the average man in general work.

The results of operation in all the cases I believe to be worthy of record.

The fourth, and last, of my cases presents several unusual features; and, in searching the literature at my command, I can find no other case showing such unusual conditions as regards its history and development.

Hernia-like protrusions of the spine are designated as "spina bifida," while those of the head are sometimes classed as "cranial bifida."

According to their contents when they occur in the cranium they are subdivided into—

*Meningocele*.—Composed of the sac containing cerebrospinal fluid.

*Encephalocele*.—The sac containing nerve elements, but no structure peculiar to the brain; and—

*Hydrancephalocele*.—Containing nerve structures and fluid.

True spina bifida is a hernia of the contents of the spinal canal formed by some of the spinal membranes; and it contains spinal fluid, with or without the cord or nerve-roots.

The above are differentiated as—

*Spinal Meningocele*.—Containing only cerebrospinal fluid, and not associated with motor or sensory disturbances.

*Myelomeningocele*.—Containing fluid with flattened cord and nerve-roots, and usually accompanied by paralysis of the lower extremities, rectum, and bladder; and—

*Myelocystocele*.—The protrusion being due to fluid accumulating within the central canal, so that the elements of the cord itself line the distended sac. The skin overlying is often covered with hair, and is usually pigmented. Malformations in other parts of the body usually accompany this condition, particularly of the bladder and anterior abdominal wall.

Surgery for the relief of all these conditions, except that of meningocele, has so far proven unsatisfactory; and even for the latter a death-rate of from 30 to 40 per cent is low. Many different operative methods are recommended, some of them quite complicated; but the simple procedure followed in these cases proved so satisfactory that I speak of it because of its simplicity. Most surgeons recommend that the bony deficiency be supplied with osteoplastic grafts taken from neighboring structures. In these cases no such grafting was attempted; and the lapse of time and results show that it is not necessary, nature supplying the deficiency in due time.

The last case shows what counter-pressure will do to bring about perfect results. The cases also teach that plain catgut is rapidly absorbed in the presence of spinal fluid, and that only heavy chromicized catgut should be used. We are told that notwithstanding successful treatment all such cases show some mental defect, but these cases in so far as I was able to follow them, showed no such condition. The first two patients were under observation for four and two years, respectively, before the parents moved west, since which time I have not heard of them, but at that time no mental deficiency was noticeable. The last two are still within reach, the third patient being now six years of age, and fully as bright as is the average child of that age. The last case is still too recent upon which to pass judgment, but as

\*Read at the 27th annual meeting of the North Dakota State Medical Association at Grand Forks, May 13 and 14, 1914.

the child was twenty months of age before the development of the meningocele no such condition is expected to develop, the child being bright and otherwise well developed.

CASE 1.—Following a normal labor, a female child was born with a meningocele of the cranium in the occipital region, the size of an egg. No other deformity existed, and the child seemed not to be disturbed or inconvenienced in any manner. Consent to operation was deferred on the part of the parents until nearly the third month of life, when, because the tumor seemed to increase in size, consent to operation was obtained.

The parts were shaved, and under strict asepsis an incision was made through the scalp near the base of the swelling. This was dissected away from the sac, which was then ligated with catgut and removed, and the line of incision whipstitched with catgut, and the stump dropped back into the opening, the scalp being sutured over it. An uneventful recovery followed, and the opening gradually closed so that when last seen the opening could scarcely be felt with the finger-tip. I lost sight of this patient when about four years old.

CASE 2.—Male, born with a spina bifida over the lumbar region after an uneventful labor. The covering of skin was quite thin, so that I feared rupture. No paralysis existed, and all symptoms pointed to an uncomplicated meningocele.

At operation the same methods were followed as in the preceding case, with like results. No attempt at osteoplastic transplantation was made; and when the patient was last seen near the end of the second year only a slight opening could be discovered with no protrusion of parts. As the child constantly wore a band the counter-pressure seemed sufficient to prevent protrusion.

CASE 3.—A female child, born after uneventful labor; and, although the tumor was fully as large as, if not a little larger than, the head, and was presented first, aside from a prolonged labor, nothing unusual occurred. The diagnosis as to the presentation was obscured by the presenting tumor; but abdominal palpation showed the presentation to be otherwise normal, and led me to suspect that a meningocele existed. The opening was in the central occipital region, and the tumor, fully as large as the head, so that the child could lie only upon the side.

Operation was performed on the tenth day by dissecting the sac from the scalp down to and around the point of opening. The sac was ligated, cut away, and whipstitched as in the other cases, no osteoplastic covering being used. Recovery was again uneventful; and now, after a lapse of six years, no evidence but the scar, which is covered with hair, exists. The site of operation, however, is sensitive to pressure. The child is fully as bright as other children of the same age, and is otherwise healthy and fully developed.

CASE 4.—The unusual feature in this case is that the child was born in breech presentation, and seemed in every way perfect. When twenty months of age a swelling was noticed over the upper part of the left buttock, fully two inches to the left of the median line and so far removed from the spine that its true nature was not suspected until the operation.

I saw him first about one year before the time of operation, when the swelling had the feel of a fatty tumor, and had been diagnosed as such by physicians who had seen him in the meantime. Pressure seemed not to diminish its size, and no connection with the spine could be discovered. It seemed to be freely movable. Owing to his age aspiration as a diagnostic aid was not done, as complete anesthesia would have been required; and, it having been diagnosed by others as a fatty tumor, that diagnosis was accepted in view of the fact that it was not diminished on pressure. Under strict asepsis the incision was carried down to the tumor through skin, fat, and muscle; and in attempting to dissect it out its true nature was revealed when clear fluid escaped through a slight opening into the sac. It was then enucleated up to the neck of the sac, which was then ligated with plain No. 3 catgut, and the sac removed. The stump was whipstitched with the same material, the muscle sutured over it, and the skin wound closed with No. 1 catgut. No attempt was made to cover the defect with an osteoplastic graft. On the third day leakage of spinal fluid was evident, and knowing that continued leakage was a severe drain upon the patient's vitality it was again opened and almost complete absorption of the heavy ligature was discovered. No. 2 chromic catgut was then used to ligate the sac; and the muscular covering was whipstitched over this with the same material, the skin being closed with the same sized catgut. After a few days leakage was again noticed, and, thinking to retain it with pressure, an American steel-spring truss, left, with a large circular back-pad, was adjusted so that it pressed upon the opening, effectually stopping the leak. This was removed in a week when the point of leakage was found completely closed and the patient discharged.

The interesting points in this last case were as follows:

The lapse of time since birth before evidence of spina bifida was discovered.

The vertebral arch had been undeveloped so that constant pressure of the spinal fluid from within had eventually pushed the coverings out through the opening well down into and beneath the muscles of the left buttock.

The rapidity with which the No. 3 plain catgut was absorbed in the presence of the spinal fluid, and the eventual closing of the leak, aided by *counter-pressure over the point of exit*.



## SYPHILIS AND ITS RELATION TO SOCIETY\*

BY A. J. McLAUGHLIN, M. D.

SIOUX CITY, IOWA

Fifty years ago a noted French physician wrote that, "Of all diseases which affect the human species there is none more grave or more dangerous than syphilis." I have no hesitation in saying that the disasters which follow it surpass the ravages of all the plagues which, from time to time, have struck terror into society; and we, as medical men of today, are confronted with the same malady as the leprosy of our time, a permanent and grave danger to public health, causing corruption and degeneration of the people, filling our asylums with imbeciles, idiots, and epileptics; our homes with misery; sapping the vigor of our race; and eventually, if not controlled, it may endanger our very existence by depopulation.

With regard to the origin or existence of this malady being of prehistoric antiquity, the researches have resulted in many disagreements; and no definite conclusions have been formed, though we do know that this disease existed in the West Indies and Central America from time immemorial. Syphilis first appeared in Europe during and after the year 1493; and there is no doubt in the minds of the best authorities that it was introduced into Spain by the sailors of Columbus on their return from Haiti and Central America, and that it was carried into Italy from Spain. The campaign of Charles VIII of France during 1494-95, resulted in many mercenary bands, accompanied by a great following of women, collecting in Italy, and there coming in touch with each other, and thus forming the most favorable opportunity for the spread of the disease. Therefore, the attention of Europe was attracted to this modern plague after this period. The critics claim that there was an invasion from without, for which they blame the Spaniards. It is known that after the arrival of Columbus in Barcelona, on his return from America and the Island of Haiti, in 1494, syphilis spread there among the inhabitants. The following year Charles VIII of France began preparations for his campaign, and attracted mercenaries from neighboring countries, among whom were many Spaniards infected with syphilis. Thus it came about that the disease spread during the stay of the French army in Italy. Evidence goes to show that the followers of Columbus first con-

tracted the disease in the island of Haiti and in Central America. According to a learned physician of Barcelona, who himself witnessed the invasion of syphilis in Spain, the disease had been known in Haiti from time immemorial. He believes in the American origin of syphilis, and declares it is a specific disease of the Antilles and Central America. According to Oviedo, syphilis was communicated by the Indian women to the first Spaniards who came there with Columbus, and brought by them to Spain, whence it spread to the army of Charles VIII. Among his informants Oviedo includes both those who accompanied Columbus upon his first voyage, and those who were with him on his second.

Las Casas, a contemporary physician of the time, whose father was with Columbus during the second voyage, and who himself had lived in Haiti, testifies to the existence of syphilis in the latter place before the advent of the Spaniard. He says: "I took the trouble on several occasions to interrogate the Indians as to whether the disease was of great antiquity, and they answered, 'Yes,' that it dated from a period long before the arrival of the Christians, its origin being beyond the memory of man. And it is an undoubted fact that all Spaniards addicted to sexual excesses, and who did not observe their virtue, were attacked by this disease.

Syphilis was introduced into England by mercenaries fighting in Italy who returning home took the disease with them.

Therefore it was the syphilis of Haiti that spread through Europe and the old world, and eventually was carried to our continent in the same roundabout way and by the invaders who followed.

The advancement of the knowledge of syphilis was at a standstill for many years, due to mistakes made by well-known and prominent medical men with regard to the infection or inoculation of the trouble. They were of the opinion that the primary sore was due to the pus of a purulent gonorrhea. This theory was generally believed for a long period, the real truth and advancement coming at the time of Ricord. Undoubtedly, to Ricord we owe the scientific basis on which the future study of the disease was to be grounded, and which eventually led to the formation of the most important conclusions upon the nature and cause of the disease.

\*Read at the 33d annual meeting of the South Dakota State Medical Association at Watertown, May 27 and 28, 1914.

In 1903 Metchnikoff and Roux made the all-important discovery that syphilis is transmissible to monkeys; and in 1905 Schaudinn discovered that the origin of the disease is due to a protozoön known as *spirocheta pallida*.

In 1906 Wassermann first described his test for the detection of the presence or absence of syphilis in the human body; and in 1910 Ehrlich placed upon the market his wonderful discovery, salvarsan. In 1913 Nogouchi discovered the *spirocheta pallida* in the brain of paretics and in the cord of tabetics.

These wonderful discoveries in the last few years have changed our ideas in regard to the cause and treatment of syphilis. The possibility of communicating syphilis to animals, the discovery of the *spirocheta pallida*, the serum diagnosis of syphilis by the Wassermann reaction, and the use of salvarsan, are comparatively recent discoveries.

A few facts concerning the prevalence of the disease may be of interest to you. I will quote you a number of statistics from the paper of Dr. W. T. Corlett, of Cleveland, read before the American Dermatological Association in 1913.

At the International Conference at Brussels, in 1899, Le Noir stated that 15 per cent of the inhabitants of Paris were syphilitic; Fournier's estimate gave 17 per cent. We have reason to believe that these estimates apply in a general way to the cities of other countries. It is difficult to determine with accuracy the precise number of syphilitics in a given community. Even in hospitals accurate statistics in regard to syphilis are not always obtainable.

Of cases admitted to a medical ward in a general hospital where syphilis is supposed to be excluded, 32 per cent were syphilitics; of the number 1 was a so-called secondary or recent infection, while the others presented later manifestations. Another ward in the same hospital contained 22 patients, of whom 54 per cent were syphilitic.

In the private practice of a physician devoting himself to the ear, nose, and throat, of 50 consecutive cases, 8, or 16 per cent, were luetics.

I think it may be conservatively estimated, therefore, that of all patients admitted to the hospitals in this country at least 20 per cent are victims of this disease, and are admitted for some of its manifestations. A large number of these cases remain only sufficiently long to receive temporary benefit, and are discharged, often returning at a later date with some other manifestation of the disease, or some other organ involved.

In one of our state hospitals for insane, statistics show 13 per cent of all patients admitted were suffering from general paralysis, of which 95 per cent gave positive Wassermanns.

During the past year at a symposium on syphilis at the Royal Society of Medicine in London, Yearsley stated that 6 per cent of the inmates in the London County schools for the deaf bore the stigma of congenital syphilis.

It was also shown that about 20 per cent of all male patients admitted to the asylums in England were syphilitics. Dr. Holland estimates that there are one million and a half infected with this disease each year in Great Britain; and Osler says there are 12,000 deaths yearly in the same country due to this trouble. He places syphilis in a class next to tuberculosis, pneumonia, and cancer as a death-dealing agent.

It is estimated that about 20 per cent of the population of the United States have syphilis, and that the annual death-rate for all venereal diseases reaches over 150,000.

At the present time we are aware of the fact that a thorough study of syphilis should be made in chronic visceral lesions, in lesions of the central nervous system, as tuberculosis, general paralysis, and hemorrhage, in lesions of the liver and kidneys, and in diseases of the stomach. I believe that general practitioners, and surgeons as well, would clear up a great many of these cases of obscure diagnosis and unsatisfactory treatment by the Wassermann test.

The finding of the *spirocheta pallida* in the serous discharge from the initial sore has been a great benefit to the early diagnosis of syphilis. When you consider the fact that several weeks must elapse in a great many cases before the Wassermann will react,—though it is to Wassermann that we are indebted for the method of demonstrating the presence of syphilitic infection in human blood-serum,—this test has not really come into as wide use as it deserves.

The fact that the technic is difficult, and that it requires a certain laboratory equipment, has in the past confined it to the large cities. Along with other blood-work it is a regular routine examination in Germany. The disrepute of the Wassermann reaction is due, not to the lack of its clinical value, but to its having been improperly carried out. The value of the reaction, if properly done, is certain; and the lack of value, if improperly made, is equally sure.

The Nogouchi test is the same as the Wassermann, with the exception of using human blood

instead of sheep blood. In the East it ranks about the same as the Wassermann.

The luetin reaction, which is to syphilis what the von Pirquet is to tuberculosis, and used very much the same way, with a control, cannot be depended upon, and is used very little.

The prophylaxis of syphilis may be divided as follows: moral and religious measures; suppression and segregation of prostitutes; proper medical treatment.

The teaching of sex hygiene and the purification of morals are no doubt the best of all for the abatement of this growing malady, though it is not the place of the medical man to be teacher.

The segregation of prostitutes under strict police ruling, and the forced examination by a medical man at least weekly, would be of great aid, though the laws of state, made by men who are probably ignorant of these subjects, interfere with the course of procedure. The next thing, which is last and most important, especially to the men of the medical profession, is the proper treatment. Before taking up the treatment let me say a few words with regard to the pathology.

Syphilitic lesions consist of an interstitial infiltration of embryonic cells, constituting an inflammatory neoplasm, which has a tendency to form fibrous tissue in the tertiary stage, and to resolve in the primary and secondary lesions. A miliary gumma is made up of both round and giant cells, an accumulation of which gives rise to a gumma, which may grow to almost any size. The three important changes caused by syphilis upon the human tissues are periarteritis or endarteritis, which lead to the obliteration of vessels, inflammatory infiltrations, tending to form fibrous tissue, and certain results due to the direct action of the poison on the parenchymatous cells. Besides its direct action the virus of syphilis has a toxic or degenerative effect on certain cellular tissues, which finally leads to what Fournier, of Paris, calls parasyphilis, the outcome of which terminates in tabes, general paralysis, epilepsy, diabetes, Bright's disease, tuberculosis, epithelioma, leucoderma, malformations, rickets, meningitis, and many others probably more serious, if possible, than those mentioned.

Seventy-five per cent of all spinal cord and brain diseases are due to syphilis. The nervous symptoms may develop as early as the fourth month. The nervous system in latent syphilis is attacked more frequently than the skin and mucous membrane together.

The main cause of tertiary syphilis is due to

"insufficient treatment." Let me give you the statistics of Fournier of 100 cases of cerebral syphilis, and the history of the treatment:

After thorough treatment.....	5
After modified, but insufficient, treatment..	6
After 7 to 18 months' treatment.....	10
After 1 to 6 months' treatment.....	70
No treatment .....	5
Iodides exclusively .....	5

The above shows 5 per cent after thorough treatment and 95 per cent after insufficient treatment.

The above statistics and other serious considerations should set us thinking as to what we are doing in the way of successfully suppressing and curing this dread disease. I am afraid too many of us are allowing the patients to diagnose and take treatment as they see fit. Neo-salvarsan at their leisure and, proto-iodid pills,—the syphilitic teasers, prescribed because they are handy,—carry these patients symptomless to the tertiary stage, which results in tabes, paresis, and so forth.

Let us get some system about our treatment. Let us find out the maximum dose of mercury these patients will tolerate, and give it. Let us give neo-salvarsan as it should be given, and use the Wassermann as a means of gauging our treatment. Let us look to the general health of the patient and to the care and safeguard of his family. Let us remember the one incontestable fact,—the cry of the best syphilologists of this and every other country,—that, in order to make syphilis harmless to both patient and others, you must use prolonged treatment, extending it from one to five years, and many times the entire life of the patient, and in doing this the medical profession at large will be doing justice to the people, save many lives of misery and suffering, and reap the harvest that is due them for their efforts.

#### DISCUSSION

DR. E. KLAVERNESS (Sioux Falls): The point brought out by Dr. McLaughlin as to the desirability of making a Wassermann test as a routine examination for the various graver disturbances, or apparently for even the lighter disturbances, as is done in the larger hospitals, would, if carried out, clear up the diagnosis of many a case, and set the treatment right. We are unfortunate here in South Dakota in this respect, that we do not have the population and the laboratory facilities for resorting to a Wassermann reaction at all times, and any man within the state who would systematically carry out a Wassermann reaction now and then would invalidate his findings very materially, inasmuch as it is very well established that, in order to obtain reliable readings, you must have a serologist or bacteriologist to follow this work exclusively in order to get accurate



findings. It is immensely important, and it would be a boon to the suffering people, if we could have a state serologist. It can be arranged for at the insane asylum with its large number of inmates and its staff of physicians, and such an equipment should be added to it.

There is another point to be considered in reference to this matter, and that is, possibly we allow a lot of people to slip over into this state and into other states, and fail to obtain accurate data of syphilis, so that we are compelled to take tentative reports, as the doctor did, from hospital records. How many will come to the hospitals where we are able to make a diagnosis in that way? But that is only a fraction of the population at best. We lack statistics and a law compelling that venereal diseases be reported as well as other infectious diseases. Until that time, we do not know how frequently this disease is met with, and what is added yearly to the crop of old ones. In Europe they have better and more reliable systems of gathering statistics, and all these cases are promptly reported. The only fact we have brought to our minds as to the frequency of the disease, is the number of cases of tabes we have floating around in every town. They are suffering from locomotor ataxia, and it is nothing but a flat statement of insufficient treatment which is too frequently being carried out, more so probably because every medical man will undertake to treat syphilis. The cases in the primary stage of the disease go to the family physician in every town, and no one hesitates to begin treatment. The patient disappears when the conspicuous manifestations may have disappeared, in a month or two. That is the foolish way treatment has been administered in this country for many years,—by resorting to a package they can carry along in their vest pocket. The United States is the only country where they have adopted

medication by mouth as a routine by giving protoiodids. You have a better hold on patients than before salvarsan therapy came out, by having patients submit to mercurial inunctions, which have held their place through years and years of experience in Europe. The trouble with syphilis is, that, when the skin eruptions and the subacute course have disappeared, the patient likewise disappears, and, unless the doctor possesses a certain degree of persuasion, he cannot make the patient understand that this is a serious disease about which, in duty to his fellowmen, the patient should accept advice from a doctor, and stay with him until a complete course of treatment has been taken.

DR. McLAUGHLIN (closing): I want to make a few remarks which will probably be of value to you with regard to the luetin test, which has been much talked of. It is like the von Pirquet, it having been copied from this test. I heard Nogouchi, of the Rockefeller Institute, read a paper on the luetin test several weeks ago before the New York Academy of Medicine, in which he gave statistics of this test as used by the best syphilologists in this country and abroad; and he claims there is no virtue in it that can be absolutely relied upon for diagnosis; and the only use it might be put to would be in latent syphilis. Where you have given long-continued treatments, as in brain syphilis, or syphilis of the spinal cord, you may be able to make a prognosis, whereas a Wassermann would be useless. On account of the extensive treatment, the luetin might show a positive test after the Wassermann fails. You cannot depend upon the luetin test in diagnosing syphilis; and the only absolute way of making a diagnosis is by the Wassermann test and clinical signs.

I will close by saying that I am grateful to the men to whom I have referred in this paper for statistics, etc.

## DILATATION OF THE CERVIX BY MEANS OF BAGS\*

By R. T. LA VAKE, M. D.

MINNEAPOLIS

This paper attempts to direct attention to a mode of treatment which will turn failure into success in many a borderline case. It has been learned by inquiry on the subject that the use of bags is not widespread. The average man rightly dreads vaginal manipulation in labor, especially when associated with special technic. The modern hospital and surgical training minimize this dread, and permit the wide application of special forms of management.

Obstetrics presents several conditions which at times demand artificial aid in dilatation of the cervix, such as dry labor, prolonged labor, and induction of labor for albuminuria and toxemia of pregnancy, prolonged gestation, previous difficult labors, eclampsia, placenta previa, endocarditis, and tuberculosis.

Artificial methods of dilatation are the follow-

ing: packing with gauze, bags, manual dilatation, podalic version, mechanical dilators, such as the Bossi, small incisions in the cervix, and vaginal hysterotomy. Each of these methods has its appropriate place with the exception of the Bossi dilator, which I mention only to condemn. Of all methods dilatation by means of the conical bag appears to be the best in the greatest percentage of cases, and will occupy our attention.

An ideal artificial dilator would present itself as one which in action would hold a mirror up to nature. The bag fulfilled this requirement. It is a hydrostatic dilator similar to intact membranes. Many types of bag have been used, but to my mind the best type is the Voorhees bag, a modification of the Champetier de Ribes bag, the modification adding strength and durability, but with no change of principle.

\*Read before the Hennepin County Medical Society, October 5, 1914.

It is made of thin canvas covered with rubber and the seams are well sewed and cemented, thus it is impervious and inexpandible, is capable of holding fluid and of resisting pressure, and traction can be exerted on the tube leading to the bag.

Before describing the technic of inserting the bag, I will digress to take up the subject of the anesthetic to be used when necessary. The choice of the anesthetic will have a decided influence upon the final result for both mother and child. Never use chloroform if there is the slightest suspicion pointing toward toxemia, as evidenced by urine analysis and blood-pressure.<sup>1</sup> If this maxim is rigidly followed many cases of ante-partum and post-partum eclampsia may be avoided. In proof of this contention I cannot do better than quote a summary of a report given by Drs. Edwin D. Cragin and Edward T. Hull.<sup>2</sup> In 6,863 cases of toxemia in which ether was used for operative procedures, there were 50 cases of eclampsia, whereas under chloroform there were 50 cases in 5,164 deliveries, "suggesting at least the possibility that chloroform in some cases of toxemia so increased the liver lesion as to increase the number of those having convulsions."

In most cases for introduction of the bag an anesthetic is not necessary.

There are two methods of introducing the bag, by sight and by touch. After practice, the former method is used only in those cases where the os is so small that a preliminary dilatation with a glove-stretcher type of dilator is necessary before a bag can be introduced.

*Technic of Introduction.*—It is imperative to lay stress upon asepsis. The patient and operator are prepared as for any uterine operation per vaginam, and a vaginal douche of one-half per cent lysol solution is given. The bag, sterilized by boiling, is rolled up in a direction parallel to the tube, and is grasped in a sponge-holder. The index and middle fingers of the left hand are introduced into the vagina, flexor surface up, and the bag is guided to the cervical opening along these fingers; when inserted, care being taken not to rupture the membranes if they are intact, the fingers of the left hand hold the bag in place, and the sponge-holder is withdrawn. With the fingers still holding the bag in place, an assistant fills the bag with a one-half per cent lysol solution or sterile water by means of a piston or Davidson syringe, and the tube is clamped with an artery forceps or tied with sterile tape, and the end placed in the vagina.

The Voorhees bag comes in four sizes, Nos. 1, 2, 3 and 4. They are so proportioned that when a bag pulls through the cervix the dilatation is one finger greater than the size of the bag. Thus with No. 2 you have three-fingers' dilatation, etc.

All agree that dilatation, slow and natural enough to preclude laceration of the birth-canal and yet rapid enough to save the life of mother and child, is the type of dilatation to be sought for. Gentle methods eliminate shock and laceration with attendant loss of blood, chances of infection, and subsequent scar-tissue. Accouchement forcé is a perilous operation, and to be avoided if possible, even more for the permanent than for the immediate result. I believe that any physician having the advantage of a large gynecological clinic will bear me out in the statement that many a woman is reduced to invalidism some time after delivery by a parametritis resulting from infection from a deep cervical laceration. Shallow lacerations are common after normal slow labor, and generally cause little trouble. It is the deep laceration which, in many instances comes from overhaste, that it is incumbent upon us to avoid. All are familiar with the syndrome of pain, leucorrhea, nervous manifestation, and on examination the finger-like parametritis extending from a deep cervical laceration.

The action of the conical wedge is obvious, and yet there are a few points which are pre-eminent in value; if the membranes are ruptured it closes the cervix, preventing the escape of liquor amnii, and in breech cases precludes the necessity of pulling down a foot early with subsequently less pressure on child and cord; it is a foreign body, and thus an irritant stimulating contraction of the uterus; dilatation may be hastened by traction on the tube, and if the cervix is in spasm the muscle will tire and relax, and the internal os is the first acted upon as in normal labor with intact membranes.

Permit me to quote reports, and to remark upon conditions in which bags were used, the indications, and the results. I have had and followed only twenty-eight cases, from which I would not have the presumption to draw definite conclusions. The following statistics I have drawn from the 1913 reports of the Sloane Hospital for Women, New York City, in which cases of mine enter.

These reports<sup>3</sup> cover 21,324 consecutive deliveries. Bags were used 1,216 times or in 5.7 per cent.

*Dry Labors.*—It is a good rule to introduce a bag at the end of 24 hours if no pains have started after rupture of membranes, or earlier if the child shows signs of pressure as evidenced by the usual signs of slow, irregular heart-sound, funic souffle, and meconium. In 2,352 dry labors the bags were used in 332, or 14 per cent. In 8 per cent of these 2,352 dry labors no pains had started up to time of introduction of the bag, 3 to 107 hours.

Pains began immediately in 55 per cent of cases, and one bag was sufficient in 90 per cent of cases. Bags were in the cervix from 5 minutes to 21 hours. Average time of dilatation, 4 hours and 45 minutes. Spontaneous delivery occurred in 70 per cent.

The fetal mortality was 5 per cent, with *no maternal deaths*.

Morbidity, 7.7.

Accidents, 4 prolapsed cords.

One is impressed with the high percentage of cases in which the pains began immediately, and with the fact that one bag was sufficient in such a large proportion of cases.

Of the 30 per cent not ending in spontaneous delivery 17 per cent were delivered by forceps. This percentage I believe could be reduced materially if bags were used early and with adjunct pituitrin.<sup>4</sup> We all no doubt have seen cases where it has taken three to four days for the cervix to dilate unaided, and by that time the woman was so weak and the child showed such pressure symptoms that the second stage with forceps was the last straw, and the child was born dead.

Morbidity of 7.7 per cent (temperature, over 100.6°) is high, and would not obtain under aseptic conditions previous to introduction of the bag. With strict aseptic conditions before and at the time of introduction of the bags, the danger is negligible. Four prolapsed cords were obtained, and two were replaced. One should always examine rectally or vaginally after the bag has pulled through to see if the cord has prolapsed.

In 803 cases of prolonged and protracted labor, the bag was used in 223 selected cases, or 27 per cent. Spontaneous delivery occurred in 52 per cent. The fetal mortality was 8.9 per cent, not high in this type of case. The maternal mortality was 3.1 per cent, and every case was instrumented outside.

As an instrument for induction of labor for albuminuria and toxemia of pregnancy, prolonged gestation, previous difficult labors, and

stillbirths, eclampsia, tuberculosis, and placenta previa, I believe it is unsurpassed. Toxemia, eclampsia, and placenta previa offer special problems, and I shall review them separately.

In many toxic cases one finds a softened cervix with some dilatation showing nature's attempt at delivery, and yet it is often very difficult to start pains. A bag brings on pains more quickly and more often than any other procedure. Traction can be exerted on the tube, and if eclampsia supervenes and calls for more hasty measures the cervix in most instances is dilated and soft enough to permit of manual dilatation and rapid delivery, which would have been well nigh impossible or extremely dangerous had not the preliminary bag treatment been instituted. In many instances a dead child makes craniotomy possible, thereby negating the necessity of complete cervical dilatation.

It is in cases of toxemia and eclampsia where there is no disproportion between the fetal head and the pelvis, the child is alive, and the cervix is long and hard, that vaginal hysterotomy comes into its own. Of course, with a contracted pelvis abdominal Cesarean section is indicated, as always. With this expectant treatment with bags and medical eliminatives, with more rapid measures toward the last, if necessary, a 12 per cent mortality may be expected. These figures, though misleading as all statistics are, form a mean between Seitz' and Stroganoff's 6.5 per cent and 6.6 per cent maternal mortality, the former by active treatment and the latter by expectant treatment with morphine and chloral interfering only when the cervix is dilated.

In 73 out of 192 cases of placenta previa the bag was used, and *hemorrhage was controlled in every case*.

Fetal mortality, 42 per cent.

Maternal mortality, 12 per cent.

Under old method of packing with gauze or podalic version with the leg as tampon the maternal mortality was 23 per cent.

Zweifel by means of bags reports:

Maternal mortality of only 2.6 per cent.

Fetal mortality of 26.8 per cent.

Many advocate Cesarean section. In placenta previa uncomplicated by contracted pelvis or obstructing tumors, the question of Cesarean section is a moot one.<sup>5</sup> To my mind it is indicated, if at all, only in central placenta previa where the child is alive, and we can count out previous septic vaginal examinations.

Pankow reports with Cesarean section:

Maternal mortality, 2.5 per cent.



Fetal mortality, 2.9 per cent.

These statistics are striking, and must be the result of well-chosen cases.

Dr. Edwin B. Cragin<sup>6</sup> gives a most interesting analysis of cases treated with the bag. These statistics cover 25,000 deliveries at the Sloane Hospital for Women with 223 cases of placenta previa. A summary of this article would give a maternal mortality of 14.2 per cent in complete and 5.5 per cent in incomplete placenta previa by use of bags, and the 5.5 per cent were caused by conditions other than placenta previa, thus reducing the mortality to zero, and the same could almost be expected in the 14.2 per cent of complete placenta previa if the cases could be brought to the hospital in time.

Fetal mortality about 50-60 per cent gross. In viable babies, 37 per cent.

In using the bag in this condition, do not rupture the membranes in incomplete and do not place bag within the placenta in complete cases. Podalic version is necessary in so many of these cases, and we need liquor amnii for safety of version. In complete placenta previa the difficulty of forcing the bag through the placenta is great, and causes more hemorrhage and more harm than allowing the bag to dissect up the placenta. The bag once installed will stop hemorrhage in either instance. We have all had marginal and lateral placenta previa in which the mere rupture of the membranes with the pressure of the head has caused hemorrhage to cease. They are more frequent than we are aware of. What the head will do the bag will do better, so why look to the Cesarean section?

The bag offers a valuable adjunct in cases of accidental hemorrhage in which the cervix is too hard and long, and the dilatation not sufficient to warrant the danger of immediate accouchement forcé.

Before closing I would like to answer some frequent queries.

"Why not use a bougie to induce labor in cases not complicated by hemorrhage?" A bougie is more practical in cases where the cervix is long and hard, and no anesthetic can be given. These cases are very few and in the other cases

one will find that the pains will begin sooner with a bag, the cervix will soften and dilate more rapidly, especially if aided by traction, and one runs less chance of rupturing the membranes.

"Will not the bag displace the presenting part?" Every man should keep this in mind, and not use too large a bag. I have never seen it happen when a No. 3 bag has been used, but have heard of its happening with a No. 4 bag. Thus it is well to follow the rule not to use a No. 4 bag except in breech and placenta previa cases. Here we want wide dilatation previous to extraction, and displacement is of no moment.

"As to the possibility of prolapse of the cord?" This has happened, but I doubt if it happens more frequently than it does without the intervention of bags. In fact, when a prolapse exists the placing of a bag is an adjunct in treatment. Keeping the possibility in mind one should make a rectal examination when the bag pulls through to preclude delay in treatment, just as one should make an examination upon the rupture of membranes.

The most usual and important query is that of the possibility of sepsis. Any vaginal manipulation lays itself open to this possibility, and too much stress cannot be laid upon this fact. Twenty-five per cent of deaths in labor are the result of sepsis. The blame for many of these cases lies at the door of the patients, but we should see that no blame attaches to us because of not giving instructions to the patient and above all by not being careful ourselves. I know of no case in which sepsis could be traced to bags. The hospital offers the safest environment for this procedure.

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FEBRUARY 15, 1915

## AN URGENT WARNING TO PHYSICIANS

The Federal antinarcotic law, known as the Harrison bill, which was passed on December 17th, will be in force on March 1st, two weeks from date.

The purpose of the law is to break up the drug habit, which, it is no exaggeration to say, is a menace to the human race. It is aimed at the indiscriminate prescribing and sale of narcotic drugs. The penalty for a single violation of the law is drastic, it being a fine of \$2,000 or imprisonment for five years, or both.

The law recognizes the rights of physicians to prescribe drugs of every kind and in such quantities as they see fit; but it calls upon all physicians for co-operation in the Government's effort to break up improper prescribing, that is, prescribing for those who take narcotics from habit.

It will cause physicians some temporary inconvenience, but its purpose is so laudable no thinking man will complain. To fail to comply with the law on and after March 1st may cause the prescriber humiliation, for his prescription will surely not be filled by any druggist. To have narcotics on hand, even in the usual amounts carried by any physician, is not safe.

The law, in short, is designed to prevent a single sale or prescription of the narcotics or

any medicine containing them without a record made upon blanks furnished by the Government, and sold only to prescribers and druggists who are registered.

The following are the requirements of the law, and they must be observed *strictly* by every physician:

1. Make application to the Collector of Internal Revenue of his District for registration upon a blank to be obtained from such Collector; and pay the required tax.

2. Make application to the same official for the number of order-forms wanted, and tender payment for the same at the rate of \$1.00 per hundred. Application should be made on blank to be obtained from the Collector of Internal Revenue.

3. March 1, 1915, take an accurate inventory of every item in stock coming under the operation of the law.

4. Make all orders for drugs coming under the operation of the law in duplicate upon order forms secured according to Paragraph 2 above, and keep copy on file for two years.

5. Keep a record of the drugs coming under the operation of the law dispensed or distributed (except when dispensed or distributed directly to patient) showing: (1) the date when such drug is dispensed or distributed; (2) the kind and quantity dispensed or distributed in each case; (3) the name and residence of the person to whom such drug is dispensed or distributed.

6. Druggists cannot fill prescriptions unless: (1) the prescriber has registered under the Act; (2) the prescription is dated as of the day issued and signed by the prescriber; (3) the prescription gives the office address and registry number of the prescriber.

The JOURNAL-LANCET urges all of its readers immediately to take the necessary steps to enable them to comply with this beneficent law to its very letter on and after March 1st next.

## REPEATED PHYSICAL EXAMINATIONS

If physicians and health officers throughout the country were to announce today that it would be wise for each and every man, woman, and child to submit to a regular physical examination every year, there would be a roar started in San Francisco that could be heard in New York, and the majority of the people would at once attribute this innovation to a new and undeveloped system of medical graft. Yet to show the value of such examination, it is only necessary to read what Dr. Charles B. Slade, in the *New York Medical Journal* of January 23d, says in regard to the physical examination of the employes of the Department of Health in New York. Dr. S. S. Goldwater, the chief officer of the department, declared that his department must assume the leadership in this great movement for the preservation of health and the prolongation of life.

He provided a complete medical examination by trained medical men for every employe, free of charge. They kept in the department a complete card-index of all the employes engaged in the work of public health. Examinations were not obligatory, but they were offered, and were accepted voluntarily. At first there was some hesitation on the part of the employes, but when they saw the advantage of it they expressed their appreciation.

It would be unwise in such an extended field of examination to have at the beginning fixed standards of the normal individual; for, if the limitation was a very rigid one, more than 50 per cent of all the people would probably show up badly. The standards would soon fix themselves in the different occupations, and would be somewhat elastic.

The figures are taken from examinations made from June 22d to October 22d, of which 696 were complete examinations. The statistics are peculiarly representative, because they are derived from examinations of persons of all ages from 15 to 74 years, and of a wide social and educational range,—that is, from the common laborer to the highest executive officer.

All of the employes had been vaccinated against smallpox, except one, who was recently employed and who has since been vaccinated. Fifty of this number (696) had been vaccinated against typhoid fever. Eyesight was found to be defective in 19.3 per cent of all the cases; and hearing was below standard in even a greater number. The teeth needed attention or repair in 18.8 per cent. Defects of the nose and throat were found in 8.9 per cent. Cardiac derangement, of varying intensity and importance, was found in 13.2 per cent. This alone would have justified the beginning of general physical examinations. Elevation of blood-pressure was found in 3.5 per cent. Some form of lung disease,—active, quiescent, or healed,—was found in 4.4 per cent. Some of these employes were dismissed, or given work suited to their needs. Defects or abnormalities in abdominal organs were found in 4.9 per cent. Reflexes were absent in one case, which was of recent development, but was undoubtedly a beginning tabes. Albuminuria was detected to a slight amount in so large a number—30 per cent of the cases—that the examiner was inclined to believe that his tests were too fine. Miscellaneous defects that could not be classified were found in 3.3 per cent of the cases.

Of the 696 cases analyzed, there were 232, or 33.3 per cent, who were in obvious need of medical advice; and 172, or 24.6 per cent, who were in actual need of treatment. Consequently, the number who needed advice or treatment, or both, out of the 696 cases analyzed was 327, or 44 per cent.

Imagine that out of this number the early signs of disease of the digestive organs, heart, blood-vessels, and kidneys combined, amounted to 213, or 30 per cent of the entire number. The point right here is, whether it would be advisable to take some precautionary measures, and particularly to make initial medical examinations of all people who apply for positions, subordinate or official, in order that the employers of labor may understand the quality of the physical status of the individual. To offset any ignorant criticism that may arise from such a suggestion, it should be made known that the strictest confidence is to exist between the medical examiner and the persons examined. Where employers have a large number of employes they should either demand a physical examination before the applicant is given his position, or should provide an examination after the individual is employed. No harm can come from such methods if they are properly used. If men of diagnostic ability, experience, and sound judgment are employed, they will know enough not to give an exaggerated impression of the effect of a slight deviation from the normal. It is quite likely that, with the knowledge of the physical defects which exist in applicants for labor positions, a wise employer would so arrange the work of the employe that his health would be benefited, rather than retarded, after obtaining a knowledge of the physical state of the individual.

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#### FOUR MONTHS WITH THE HEALTH EXHIBIT OF MINNESOTA

A glance at the work done by the Minnesota Health Exhibit during the last four months of the year 1914, is an admirable *exhibit* of the health work now carried on in Minnesota.

This Exhibit was formerly the Traveling Tuberculosis Exhibit. It is now enlarged for a General Health Exhibit. It was sent out under the auspices of the Advisory Commission of the State Sanatorium for Consumptives, the State Board of Health, the Public Health Association, the State Department of Labor, the State Live Stock Sanitary Board, the State Dairy and Food



Department, the State Dental Association, and the Infant Welfare Association of Minneapolis and St. Paul.

The Exhibit consists of about one hundred twenty charts, photographs, carbons and mottoes, with models for ventilating a room, and an exhibit of antityphoid vaccine.

It was first shown at the State Fair for a week, and was seen by several thousand people. It then went to the State Conference of Charities and Correction at Bemidji, and thence to the meeting of the Minnesota Federation of Women's Clubs at Rochester. It was shown in the gymnasium of the High School of Rochester, and was visited, not only by the delegates to the women's meeting, but by all the high-school pupils, who studied it under the supervision of one of the teachers. Two thousand people saw it at Rochester.

It then went to other cities and villages of the State, at some of which places health conferences were in session or health problems were under consideration. Lectures were given at the various places by physicians, dentists, and other men and women working for the betterment of the public along health lines.

The total number of places visited during the four months was thirty-one, and the total number of visitors, by careful estimate or count, was 33,000.

The Exhibit was under the supervision of Mr. A. R. Blakey, of the State Board of Health, to whom a large share of the credit for its great success, is due.

Will any man attempt to measure the value of such an exhibit, of such work, done largely by volunteers—measure it in terms of money, of misery averted, or of happiness assured?

Can any man even conjecture the value of such work continued for a generation?

Such is the work of the most modern public-health movement, conceived, set in motion, and carried on by the medical profession, not only in Minnesota, but, on a larger or smaller scale, in every State of the Union.

## REPORTS OF SOCIETIES

### STEARNS-BENTON COUNTY SOCIETY

The Society held a quarterly meeting at St. Cloud on Jan. 21st. The following papers were read:

"Diagnosis of Functional Disturbances of the Heart," by Dr. S. Marx White, Minneapolis.

"Cerebrospinal Meningitis: A Full Report of Ten Cases, Nine of Which Occurred in One Family and Four of Which Died," by Dr. August Kuhlmann, Melrose.

A thorough discussion followed both Dr. Kuhlmann's report and Dr. White's thoroughly scientific and, at the same time, simple and practical subject. A rising vote of thanks was extended Dr. White.

Dr. and Mrs. C. F. Brigham entertained Dr. White and a few medical friends at a dinner following the meeting.

The next meeting will be held at Sauk Center on Feb. 18th.

The resignations of Dr. E. A. Anderson and Dr. G. S. Brigham were regretfully accepted.

J. C. BOEHM, M. D., Secretary.

### HENNEPIN COUNTY SOCIETY

The Society held its annual meeting on Jan. 4th, with fifty-six members present.

The Executive Committee reported three resolutions, which were passed, one to ask for an amendment to the by-laws of the State Association permitting members of the faculty of the University who are members of the Hennepin County Society to become members of the State Association; one opposing the amendment to the State Association by-laws offered by Dr. Schmidt; and one favoring the amendment offered by Dr. Rothrock at the last meeting of the State Association.

A petition asking for the establishment of a Department of Röntgenology was granted by motion.

The Milk Committee's report showed that the amount of "certified" and "inspected" milk now received in the city increased during the year from 12,000 quarts a month to 20,000 quarts, which is about 0.5 per cent of the total sold in the city.

The committee appointed to assist in establishing "quiet zones" about the hospitals of the city reported progress.

President McCollom delivered the annual presidential address, and officers were elected for 1915, as already published in these columns.

E. J. HUENEKENS, M. D., Secretary.

### NICOLLET-LE SUEUR SOCIETY

The annual meeting of the Society was held at Le Sueur on January 26th.

Dr. J. E. Le Clerc gave an interesting report of

a case, and Dr. F. P. Strathern reported a case of Cesarean section.

Officers were elected as follows: President, Dr. G. L. Baskett; vice-president, Dr. R. G. Olson; secretary, Dr. F. P. Strathern; treasurer, Dr. J. W. Daniels; delegate, Dr. R. N. Phelps.

The Society was entertained by Dr. and Mrs. D. W. McDougal.

The occasion was a very pleasant one.

F. P. STRATHERN, M. D., Secretary.

### LYON-LINCOLN COUNTY SOCIETY

The Society held its annual meeting last week, when the following officers were elected for the current year: President, Dr. C. E. Persons, Marshall; vice-president, Dr. E. T. Sanderson, Minneota; secretary-treasurer, Dr. H. M. Workman, Tracy; councilor, three years, Dr. W. Wakefield, Lake Benton; delegate, Dr. Chas. Germon; alternate, Dr. W. Valentine.

The delegate was instructed to vote *No* on both proposed amendments.

H. M. WORKMAN, M. D., Secretary.

## CORRESPONDENCE

### TO DEGRADE THE STATE BOARD OF HEALTH

TO THE EDITOR:

Some curious arguments have been presented by adherents of the Efficiency and Economy Commission for placing the present State Board of Health, not as a Department, but as a mere Bureau of a Department, in the proposed new scheme of government for Minnesota.

The Efficiency and Economy Commission plan creates a Department of Public Welfare, having at its head, as Director, a lay, political, appointee of the Governor, coming into office with each new Governor, and going out with him. This Director is to be designedly and admittedly the Governor's personal representative in the control of the Department. Public Health is placed as one of sixteen subdivisions of this Department, for, under the Director of Public Welfare, are the superintendents of the various state jails, asylums, industrial schools, etc., and, on exactly the same level, the State Board of Health. True, the latter is distinguished from, say, the Hospital for Inebriates, in that its head is to be called a *commissioner*, instead of a *superintendent*; in that its organization is to be termed a "bureau,"

instead of an "institution"; and in that it has as an advisory body, a subcommittee of the general Advisory Committee, instead of the whole committee. But in no essential respect does this organization, intended to supervise the health of the 2,000,000 citizens of Minnesota, differ, in status or in relation to the State Government, from that of any one of the sixteen or seventeen custodial institutions designed for the control of that small proportion (less than 3 per cent) of the population who constitute the State's defectives.

In reply to the question why the very broad term "Public Welfare Department," instead of the distinctive term "Institutions Department," was applied, notwithstanding that the Public Welfare Department is to be chiefly concerned with the custody of defectives, this naïve answer was returned: "It was originally denominated 'Institutions Department' in accordance with its character; but, when it occurred to us to put Public Health in with the rest, we thought that, perhaps, the term 'Public Welfare' would sound better!"

But why put Public Health as a Bureau into this or any other Department? Why not make it a Department in itself? "Because we want it a part of the Government, not an independent little Government!"

But are not the Departments of Education, of Labor and Commerce, or of other subdivisions parts of the Government? "True."

Are any one of them independent little Governments? "No-o, but a Health Department similarly organized would be!"

Why? (Silence, broken only by our old friend Echo.) Later, after much thought, the argument was offered that the administrative work of Public Health was not massive enough to constitute a Department; and it just had to be made a Bureau!

But education is to be a Department, is it not?

"Yes; one which has vast administrative work."

How so? "It teaches 400,000—no, I mean it administers the teaching of 400,000—no—now I have it: it supervises the administration of the teaching of 400,000 children, from four to nine months a year."

But does not the health work involve all-the-year-round supervision of the administration, and often the administration itself, of the health interests of the whole 2,000,000 people of the state? "Yes, but the health organization is a very small body, with a very small appropriation; it does not carry the administrative work of the Education Department."

Oh! Is it not true that the Education Department has but one-half the number of people that the present Health Board employs and but one-third its appropriation? "Ha-hum-well, yes; I suppose that is true!"

Can the Education Department or could any department, with but half the staff of the Health Board and but one-third of its appropriation, conduct so much more administrative work than the Health Board, that it is entitled to be created a Department on that account, notwithstanding that the Health work is made a Bu

reau on account of its small size, which is nevertheless double that of the Education Department.

"W-e-l-l, the Educational Department administers the distribution of \$4,000,000 in State aid!" (Recess, to allow the interviewers to recover from the shock of discovering just what the Efficiency and Economy Commission considers as constituting real work.)

After a time it was urged from the Commission side that there would be no advantage in calling the Health organization a Department, instead of a Bureau, "because the same highly qualified men now so admirably conducting its affairs could continue to do just as good work under the name Bureau as under the name Department!"

But is it not equally true that, conversely, these same men could continue their splendid labors equally well under the name Department as under the name Bureau?

"True; but then their salaries would have to be raised!"

Why? Has anyone advocating a Department asked that higher salaries should go with the change in name? "No."

Do you propose that the use of the name "Bureau" is to imply that these same highly qualified men shall always continue to receive inadequate salaries? "No."

In what item or items, then, will the name "Department" carry with it added expense? "Well, there is the item of the salary (\$5,000) of the Director who must, in accordance with the general scheme, head this, as well as every, Department."

What would his functions be? "To keep his Department in touch with the Governor and the people,—points on which the present Health organization has, it is alleged, failed; and to secure adequate appropriations for health work,—a point on which the present Health organization has most notoriously failed."

Then, by creating a Department and expending \$5,000 for a Director, these three great evils can be removed from any existing Board at one stroke? "Well, yes!"

But the solution in the case of the Public Health work, is not to grant him, but to do away with him? "Oh, no; under our plan the Health Bureau will have such a head!" But does not your plan divide his efforts amongst sixteen institutions of which the Health Department is only one?

"Yes, but we save fifteen-sixteenths of \$5,000 by that arrangement!"

Is it not true that by making Public Health a Department on exactly the same basis as education,—i. e., in control of a board, instead of in control of a director, the expense of the director's salary would be done away with entirely? "Yes."

Then it would appear that the prestige and other advantages of a Department could be granted to the Public Health work without any increase in expense whatever. "Yes, but we believe the bureau organization is sufficient."

Does not the Health organization deserve the name Department if only for prestige? "Yes."

If for \$5,000 spent in making it a Department, far more than \$5,000 worth of advertising can be secured,—advertising of the Health Department as an efficient, reputable, important arm of the Government; advertising of the Government as recognizing the importance of Public Health, the modern giant of sociological advance; advertising of the Public Health itself to the public,

thus securing the co-operation which enhances tenfold every effort in public-health lines. If all this can be secured for \$5,000, would not the advertising alone be worth the money, to say nothing of securing closer touch with Governor and people, and increased appropriations, which are undoubtedly the very desirable ends you advocate? "Well, we can't depart from our position that Public Health is not sufficiently big business, to earn a departmental standing."

But you admit it ought to be greatly expanded; ought to have much greater appropriations; ought to do big business; and that it will reach these goals more quickly and inevitably by a departmental organization than otherwise?

"True; but—well, our plan is not perfect; doubtless the law will be amended to create it a Department as soon as it has grown."

But by creating it a Department now, that much-to-be-desired growth will occur immediately, when it is most needed, and more quickly than by any other process? "Y-e-s; w-e-l-l, anyway, Public Health ought to be a Bureau. The trouble with you public-health people is that you can't understand simple little business propositions! Labor and Commerce, Institutions, Education, Public Domain—these are all big important bodies because they handle *cash*; Public Health handles only life and death—can't you understand *anything*?"

It seemed that the interviewer could not understand even this one thing, and he remains in grave contemplation of the subject, trusting that hearings of the Legislature may let in the light not so far vouchsafed to him.

The writer affirms, and can bring reputable witnesses to show, that the above is a fair outline, not far from verbatim, of arguments, pro and con, by representatives and advocates of the Efficiency and Economy Commission plan. The arguments greatly enlightened those interested in Public Health, and persuaded some who merely did not wish a Bureau to the conviction that the real need exists for a Department.

On the other hand, the chief effect of these conferences on the representatives of the Efficiency and Economy Commission plan seemed to be summed up in an expression of regret, not that the health work had been made a Bureau, but that Education had not been made a Bureau also!

The chief lesson of the whole affair seems to be that the present plan is too full of such "regrets" to deserve serious consideration as an expression of the best views, even of this particular Economy and Efficiency Commission. Still less is it to be considered as the mature recommendation of thoroughly efficient and truly economical students of State government.

H. W. HILL.

Executive Secretary.

Minnesota Public Health Association.

St. Paul, Feb. 4, 1915.



## NEWS ITEMS

Dr. H. E. Canfield, of Minneapolis, has located at Willmar.

Dr. G. P. Shepard, of Chicago, has moved to Jamestown, N. D.

Dr. Malcolm J. Farrish died at his home in Sherburn on January 26th.

Dr. C. J. Wallace, of Duluth, is taking post-graduate work in New York.

Dr. W. R. Claybaugh, of Golden Valley, N. D., has located at Wild Rose, N. D.

Dr. C. S. Bossert, who has practiced medicine in Iowa for several years, has located at Mora, Minn.

The St. Paul City Hospital made a new record when it cared for 610 patients in the month of January.

Dr. G. C. Hanson has sold his practice in Charlson, N. D., and is spending some time in Chicago.

Dr. J. E. Rheim, of Grasston, was married on January 2d to Miss Stella Peterson, also of Grasston.

Dr. John J. Ryan, of St. Paul, was married last week to Miss Edwina Hurlbut, of Oconomowoc, Wis.

Dr. Ingle Law, of Munich, N. D., is in charge of the practice of Dr. W. H. Porter, of Calvin, N. D., while the latter is in Chicago.

A free infant-welfare clinic has been established in Virginia, which will be under the direction of Dr. Michelson, the school physician.

The Ramsey County Medical Society will not admit a physician to membership until he has been a resident of the county for one year.

Dr. Mabel Ulrich's lectures in different parts of the State on "Sex and Society" are very favorably commented on by local newspapers.

Dr. A. W. Ide, of Brainerd, gave the principal address at the January meeting of the Interurban Medical Society (Duluth and Superior) held at Duluth.

The Minnesota State Board of Health will compel all physicians to report cases of infectious diseases, and will do so by court proceedings when necessary.

Lake City is determined to have a hospital, and it is planned to raise the money among the citizens

and farmers for a building that will meet the needs of the community.

Governor Hanna, of North Dakota, has appointed Dr. W. F. Maertz, of Lidgerwood, N. D., to the State Board of Medical Examiners, to take the place of Dr. F. G. Benn, of Kulm, resigned.

The Clay-Becker County Society held its annual meeting last month. The date of the annual election was changed from January to October, and the officers for 1914 were continued to the October meeting.

Dr. Justus Ohage, St. Paul's efficient Health Officer with backbone, has refused to appoint his subordinates exclusively from a list of applicants furnished by the City's Civil Service Commission. The matter will be settled by the courts.

The sale of Red Cross stamps this year in Minnesota, for the benefit of the tuberculous, brought \$20,000. This amount is divided as follows: \$2,000 to the National Association, \$6,000 to the State Association, and \$12,000 to the local organizations that had charge of the sales.

The proposed affiliation of The Medical School of the University of Minnesota and the Mayo Clinic has been approved by the medical faculty and its Administrative Board, and also by the Advisory Committee of the medical alumni. It now goes to the Board of Regents for their approval.

The Stark County (N. D.) Society held its annual meeting last month in Dickinson. The following officers were elected for 1915: President, Dr. A. P. Nachtwey; vice-president, Dr. W. H. Long; secretary and treasurer, Dr. O. C. Maercklein; delegate, Dr. J. H. Cosgrove; alternate, Dr. H. A. Davis.

The Swedish Hospital, of Minneapolis, opened the large new addition to its building last week. This addition is known as "The Pavilion." It is 67x65 feet in size and four stories high. It gives room for forty additional patients, besides an assembly hall in the basement. The fourth floor will be used as a maternity department.

Dr. William H. Rowe, Sr., of St. James, died on February 4th at the age of 57. Dr. Rowe has been a prominent figure in Minnesota for many years. He served on the staffs of several governors, was mayor of St. James for a number of years, and was president of the St. James Hospital at the time of his death. He practiced in St. James over thirty years.

A Minneapolis physician has been fined "\$100 or 90 days" for prescribing heroin "habitually." A single prescription given after March 1st, unless written upon a U. S. Government blank and made by a *registered* physician, may mean a fine of \$2,000, imprisonment for five years, or both. No physician, whatever his age or standing, is exempt. Note the date, which is March 1, 1915.

The Aberdeen (S. D.) District Society held a well-attended and interesting meeting last month in Aberdeen. Dr. C. E. McCauley read a paper on "Twilight Sleep: Its Uses and Abuses." The paper brought out a lengthy, interesting, and informing discussion. The Freiburg experiment is one thing in a popular magazine, and quite another thing in a meeting of physicians, when its "uses and abuses" are scientifically considered.

### PHYSICIANS LICENSED AT THE JANUARY (1915) EXAMINATION TO PRACTICE IN MINNESOTA

#### UPON EXAMINATION

Bringman, Mark S. . . . . Hahnemann, Pa., 1911  
Stanley, Court R. . . . . Rush, 1911

#### UPON RECIPROCITY

Arends, Archibald L. . . . . Northwestern, 1908  
Bassett, Clarence S. . . . . G. Washington U., 1908  
Bates, Bret Verne. . . . . Drake, 1909  
Collie, Henry Glenwood. . . . Northwestern, 1903  
Daniels, William H. . . . . U. of Louisville, 1910  
Eirley, Clara S. . . . . Women's Med. Col., Md., 1892  
Harriman, Leonard. . . . . P. & S., Chicago, 1909  
Iden, Benjamin F., Jr. . . . . U. of Virginia, 1909  
Johnson, James A. . . . . Northwestern, 1910  
Lareau, Hector G. . . . . Marquette, 1913  
Martineau, Joseph L. . . . . Rush, 1913  
McNeil, Benjamin F. . . . . P. & S., U. of Illinois, 1902  
Rizer, Robert L. . . . . Rush, 1906  
Stinnette, Shelby E. Hahnemann, Chicago, 1913  
Williams, Charles A. . . . . St. Louis U., 1912

### OFFICE FURNITURE FOR SALE

A good roll-top desk and other office furniture is offered for sale at a reasonable price. 616 Syndicate Bldg., Minneapolis.

### WANTED

A physician and surgeon to locate at Judson, North Dakota. No doctor located within seven miles on the west and twenty-three miles or more in other directions. One who could start small drug-store in connection with his practice preferred. Address First State Bank, Judson, N. D.

### WANTED TO EXCHANGE

Contract mining practice, on Iron Range, with modern hospital, complete equipment, autos, good roads, drive all the year, best contracts, \$600 to \$800 cash each month; future very bright. Owner wishes to correspond with an A 1 physician and surgeon with a good stand in or very near the Twin Cities, with the view of effecting an exchange for part of the year. Address, 204, care of this office.

### PHYSICIAN WANTED

To locate in a thriving North Dakota town. For full information correspond with Andrew Erickson, Makote, N. D.

### FOR SALE

To a man with surgical ability, one-half interest in my private practice and well-equipped hospital, located in a live up-to-date county-seat town in Minnesota; population 2,500; two railroads; good schools and roads; good fees. This is an excellent opportunity to get into a place with a good future. Price, \$5,000 for one-half interest in hospital building, equipment, office fixtures, and practice; \$2,500 cash. Don't write unless you mean business and have the cash. Address 202 care of this office.

### WANTED

An eye, ear, nose, and throat man who is willing to work. Must be sober, competent man. State the salary expected, and give credentials in the first letter. Address the C. A. Hoffman Co., 814 Nicollet Ave., Minneapolis, Minn.

### FOR SALE

Contract and general practice on Minnesota Iron Range in small town; bright future. Modern facilities; good terms to first-class man. A little money will handle it. Address 197, care of this office.

### PRACTICE WANTED

In Minnesota or South Dakota town, with some future and where English is spoken. This is wanted by physician who has had several years' experience in practice, and has done laboratory and hospital work. Address 198, care of this office.

### PRACTICE OR PARTNERSHIP WANTED

In town of 1,000 to 5,000 in North Dakota or reciprocating state, paying not less than \$5,000 a year, by physician just finishing post-graduate work. Competent surgeon and laboratory man. No real estate wanted. Introduction required. Possession Feb. 1. Address 196, care of this office.

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-eighth annual session opens September 28, 1914, and closes June 5, 1915. New Orleans Polyclinic, P. O. Drawer 261, Post-graduate Medical Dept., Tulane University of Louisiana.

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	0															
Albert Lea	4,500	6,192	7	1													1	
Alexandria	2,681	3,001	1															
Anoka	3,769	3,972	5			1	1											
Austin	5,474	6,960	5															
Barnesville	1,326	1,353	*															
Bemidji	2,183	5,099	4															
Benson	1,525	1,677	1															
Blue Earth	2,900	2,319	12															
Brainerd	7,524	8,526	16	1														
Breckenridge	1,282	1,840	1															
Canby	1,100	1,528	1														1	
Cannon Falls	1,239	1,385	2															
Chaska	2,165	2,050	3															
Chatfield	1,426	1,226	1			1											1	
Cloquet	3,074	7,031	5					1										
Crookston	5,359	7,559	12	2		1									2		3	
Dawson	962	1,318	3	1													1	
Detroit	2,060	2,807	4															
Duluth	52,968	78,466	79	14	2	11	2								1	4	4	1
East Grand Forks	2,077	2,533	5															2
Ely	3,572	3,572	7			1												5
Eveleth	2,752	7,036	4												1			
Fairmont	3,440	2,958	1															
Faribault	7,868	9,001	12													3	1	
Fergus Falls	6,072	6,887	7		2													
Glencoe	1,788	1,788	1															
Glenwood	1,116	2,161	1															1
Granite Falls	1,454	1,454	*															
Hastings	3,811	3,983	3	1														
Hutchinson	2,495	2,368	1	1														
International Falls		1,487	3															1
Jordan	1,270	1,151	2															
Lake City	3,142	3,142	2		1													
Le Sueur	1,937	1,755	1															
Little Falls	5,774	6,078	8			1												
Luverne	2,223	2,540	4	1														
Madison	1,336	1,811	4															1
Mankato	10,559	10,365	16	1		2												
Marshall	2,088	2,152	5		1													
Melrose	2,591	2,591	1	1														
Minneapolis	202,718	201,408	328	34	7	37	11											
Montevideo	2,146	3,056	3								1		1	6	9	31	2	13
Montgomery	979	1,267	0													1		1
Moorhead	3,730	4,840	4															
Morris	1,934	1,685	0															
New Prague	1,228	1,551	0															
New Ulm	5,403	5,648	6															1
Northfield	3,210	3,215	2															
Ortonville	1,247	1,774	3															1
Owatonna	5,561	5,658	6	1														
Pipestone	2,536	2,475	1					1										
Red Lake Falls	1,666	1,666	1															
Red Wing	7,525	9,048	10															1
Redwood Falls	1,661	1,666	1															
Renville	1,075	1,182	0															
Rochester	6,843	7,844	30		1	3											5	
Rushford	1,100	1,311	2															
St. Charles	1,304	1,159	0															
St. Cloud	8,663	10,600	12			4												1
St. James	2,102	2,102	4															
St. Paul	163,632	214,744	231	19	2	28	3	4							5	12	19	1
St. Peter	4,302	4,176	5															20
Sauk Centre	2,154	2,154	2	1														
Shakopee	2,046	2,302	2														1	
Sleepy Eye	2,046	2,247	1															
South St. Paul	2,322	4,510	3	1		1												
Staples	1,504	2,558	1															
Stillwater	12,318	10,198	10	1														
Thief River Falls	1,819	3,174	3			1												1
Tower	1,111	1,111	*															
Tracy	1,911	1,826	1															
Two Harbors	3,278	4,990	2			1												
Virginia	2,962	10,473	13	1		3												
Wabasha	2,622	2,622	5		1	1	1								3	2	1	
Warren	1,276	1,613	1															
Waseca	3,103	3,054	3			1										1		
Waterville	1,260	1,273	3															1
West St. Paul	1,830	2,660	3															1
Willmar	3,409	4,135	4				1				1							
Winona	19,714	18,583	13	3				2										
Winthrop	813	1,043	1												1			
Worthington	2,386	2,386	1															



## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aitkin	1,719	1,633	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Akeley	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Appleton	1,184	1,221	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Belle Plaine	1,121	1,204	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biwabik	1,696	1,696	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bovey	1,377	1,377	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Browns Valley	721	1,058	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buffalo	1,040	1,227	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Caledonia	1,175	1,372	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cass Lake	546	2,011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chisholm	7,684	7,684	11	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Coleraine	1,613	1,613	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delano	967	1,031	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Farmington	733	1,024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fosston	864	1,055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Frazee	1,000	1,645	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Rapids	1,428	2,239	7	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Hibbing	2,481	8,832	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackson	1,756	1,907	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Janesville	1,254	1,173	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kenyon	1,202	1,237	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lake Crystal	1,215	1,038	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Litchfield	2,280	2,333	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Long Prairie	1,385	1,250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Madelia	1,272	1,273	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Milaca	1,204	1,102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mountain Lake	959	1,081	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nashwauk	0	2,080	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
North Mankato	939	1,279	3	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0
North St. Paul	1,110	1,404	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Osakis	917	1,013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Park Rapids	1,313	1,850	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pelican Rapids	1,033	1,019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perham	1,182	1,376	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Pine City	993	1,258	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Plainview	1,038	1,175	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preston	1,278	1,193	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Princeton	1,319	1,555	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
St. Louis Park	1,325	1,743	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sandstone	1,189	1,818	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sauk Rapids	1,391	1,745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Stillwater	1,422	1,343	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Springfield	1,511	1,482	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Spring Valley	1,770	1,817	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wadena	1,520	1,820	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wells	2,017	1,755	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Minneapolis	2,250	3,022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wheaton	1,132	1,300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
White Bear Lake	1,288	1,505	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Windom	1,944	1,749	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Winnebago City	1,816	2,555	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zumbrota	1,119	1,138	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

## STATE INSTITUTIONS

Anoka, Asylum	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Faribault, School for Blind	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Faribault, School for Deaf	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Faribault, School for Feeble Minded	7	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fergus Falls, Hospital for Insane	15	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hastings, Asylum	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minneapolis, Soldiers' Home	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Owatonna, School for Dependents	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Red Wing, State Training School	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rochester, Hospital for Insane	15	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sauk Centre, Home School for Girls	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
St. Peter, Hospital for Insane	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
St. Cloud, State Reformatory	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stillwater, State Prison	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

## OTHER PARTS OF STATE

OTHER PARTS OF STATE	717	56	2	46	5	6	1		7		1	7	37	54	4	66
Total for state.....	1813	152	20	157	24	14	1	0	10	0	2	31	80	138	8	136

\*No report received. Registrar not doing his duty.

125 stillbirths not included in above totals.

# For Mother and Child

After prolonged lactation a mother's milk usually decreases in quantity and nourishment. It is then that a properly prepared liquid extract of malt and hops would not only increase the volume of breast milk but the amount of its fat content. But to accomplish this, it must be a **real** extract of malt and hops and not a cheap imitation.



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ANHEUSER-BUSCH,

St. Louis

## PUBLISHER'S DEPARTMENT

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## FEEDING OF THE HEALTHY INFANT\*

By E. J. HUENEKENS, A. B., M. D.

Instructor in Pediatrics, University of Minnesota

MINNEAPOLIS

The science of infant-feeding has been revolutionized in the last twenty years, and, in the process, it has advanced too radically in many directions. Lately, the pendulum has been swinging backward, so that the most advanced knowledge of today probably represents a middle ground between extreme radicalism and extreme conservatism. In no other direction is this more manifest than in the feeding intervals. The religious adherence to the four-hour feeding interval is giving way to a more rational system. I am one of the firmest adherents of the longer interval: the food is better digested, the stomach has a period of rest, and the general well-being of the infant is better furthered than with more frequent feedings. But there are certain infants who do not receive enough nourishment in this interval, especially young breast-fed infants in whom it can be demonstrated by accurate weighing, before and after nursing, that they receive considerably more milk in twenty-four hours with the three-hour interval. This is the more important in that Rosenstern has demonstrated that a large proportion of infants up to the age of six weeks require more than the usual 100 calories per kilogram of body-weight. One hundred calories represents 150 grams of breast-milk, so that a five-kilo, or eleven-pound, baby should receive a minimum of 750 c.c. of breast-milk in twenty-four hours.

By far the best food for the healthy infant in every way—and this cannot be emphasized too

strongly—is mother's milk. There are certain alimentary disturbances in which it may be advisable to replace breast-milk with certain artificially prepared foods, such, for instance, as albumin milk in alimentary intoxication; but this is never true of the normally healthy infant. While, as regards growth and freedom from digestive disturbances, certain artificially prepared foods may, when used with exceeding care, produce as good results as breast-milk; nevertheless, this is only one function of breast-milk. The other function which can be imparted to no artificial food is the passive immunization of the child against infection. Ehrlich (*Zeit. f. Hyg. u. Infektionskr.*, 1892, xii, 183) has proved that antibodies, antitoxin, and agglutinins are transmitted directly through the milk from mother to child; and it has been shown that the blood of a breast-fed child is considerably more bactericidal than the blood of a bottle-fed infant.

The practice of weaning the baby for trivial reasons has increased in the last decade, and can be laid largely at the door of the medical profession. For all practical purposes the only absolute indication for weaning the baby is open tuberculosis in the mother. For the last few years I have been making a systematic inquiry at the University Dispensary and Infant Welfare Stations as to reasons for weaning young infants; and in nine cases out of ten, the answer has been that "the milk gave out." In only a very small proportion of cases has an ordinarily well-nourished mother insufficient milk; far oftener the fault lies with the child. Insufficient

\*Read before the Hennepin County Medical Society, Nov. 2, 1914.

and late development of the sucking reflex prevents these infants from completely emptying the breast, which in time "dries up." This period can be tided over by nursing from both breasts, by temporarily increasing the number of nursings, or temporarily employing "allaitement mixte." In cases in which, after long, patient effort the supply of milk is still insufficient, either supplementary or complementary feeding of cow's milk can be given. Where this mixed feeding is employed a minimum amount of cow's milk should be given; and the opening in the nipple should be as small as possible, otherwise the child gets too much cow's milk, and with too little effort, and gradually refuses the breast.

Another excuse, and one fostered to some extent by physicians, is, that certain breast-milks are "poison for the baby." This has even less foundation in fact; and here again the fault must be looked for in the baby rather than in the mother. Outside of certain variations in the fat-content, all breast-milks are alike in composition. In proof of this Finkelstein has fed these babies at the breast of tried wet-nurses with absolutely no benefit, while the children of the wet-nurses would thrive at the breast of the "poison-milk mother."

Abscess of both breasts may force a temporary cessation of nursing, but the breast should be regularly emptied until the inflammation has subsided; and then the nursing should be re-established. Cracked or sunken nipples may render nursing impossible, but they do not stop the flow of milk. In both these latter conditions the milk may be manually expressed or removed with the breast-pump. In this connection I wish to recommend the improved Jaschke pump, in which, by means of a releasing valve, the sucking movements of the child can be very closely imitated.

Where artificial feeding must be started early, cow's milk is almost universally employed. Whenever possible, "certified milk" should be used; the ordinary milk, however, can be boiled with little or no harm. In diluting and preparing this milk, we have the choice of several methods. The so-called percentage feeding, favored in America, is difficult and cumbersome, and has no advantages over its simpler rivals. Pfaunder's rule may be safely employed. It is as follows: One-tenth body-weight of milk, one one-hundredth body-weight of sugar diluted up to one liter; give 200 c.c. five times in twenty-four hours. Even simpler is the following: One-

third milk for the first month, one-half for the second month, two-thirds for the third and fourth months, each with the addition of 4 to 6 per cent sugar. Either milk-sugar or ordinary granulated sugar may be employed. The malt sugars and extracts should be reserved for sick children. After the second month, oat-meal water may be used as a diluent in place of plain water.

Recently Friedenthal, a Berlin physiologist, has attempted an exact imitation of mother's milk, including that important element, the salt, which had, until recently, been entirely neglected. Langstein is very enthusiastic over this milk as a food for healthy infants; but Finkelstein, in a personal communication, assured me that it has not as yet proved itself. Schloss, dissatisfied with the results of the Friedenthal milk, has modified it in the direction of casein milk by replacing the milk-sugar with the malt preparations, and increasing the protein content. He claims good results, and is supported by Leopold, of New York, who has used it extensively. But we must leave the final word as to both these milks for the future to decide. From the sixth to the ninth month for both breast-fed and bottle-fed babies, cooked cereals, toast, and vegetables should be gradually added to the diet. At the ninth month, unless this is one of the hot summer months, the nursing should be weaned, and a small amount of cow's milk substituted. The weaning should be gradual by omitting one nursing period each week. The one important exception to the foregoing rules for the first year of life, is the premature infant. In the ninth month of fetal life, reserves of calcium and iron are stored up in the body, which the infant gradually uses up during the first nine months of extra-uterine life. The premature infant lacks this store, and manifests it in different ways. As early as the second or third month a breast-fed premature infant may develop a most extensive craniotabes. This is not due to a true rachitis, i. e., disturbance of calcium metabolism, but to a want of calcium in the body. Small amounts of cow's milk, which contains much more calcium than human milk, or calcium in the form of calcium lactate or chloride, will remedy this condition. A similar process happens in the case of iron. The premature infant is born with a hemoglobin percentage of 100 to 110; by the third or fourth month this may sink to 40 per cent, and for this reason green vegetables should be added to the diet as early as the fourth month.

The diet of healthy children in the second year should include cooked cereals, vegetables, toast, cooked fruits, and meat-juices; and the quantity of cow's milk should be limited to one and one-half pints in twenty-four hours. The question of the addition of meat to the diet is important. Some authors have recently advocated the giving of meat as early as the ninth month. During the past year, working in Finkelstein's laboratory, I have been able to gather some facts which have a direct bearing on this question. (*Zeitschrift für Kinderheilkunde*, July, 1914.) By means of the new electrometric determination of absolute acidity (that is, the number of H ions), I was able to show that the acidity of the stomach before the eighteenth month of life is insufficient to permit any peptic, i. e., protein, digestion. Solomon, working in the same clinic, in a report not yet published, has shown the same thing from a clinical standpoint. He found that on a meat diet up to the end of the second year large quantities of muscle fibers passed through with the bowel-movement unchanged; but after that age they rapidly decreased in number. It is, therefore, worse than useless to add meat to the diet before the beginning of the third year.

Eggs frequently produce profound disturbances in young infants, perhaps on account of the absorption of egg albumin, unchanged, in the blood-stream; and they should be kept from the diet-list until the beginning of the fourth year.

These rules for feeding are generalized, and there may be many exceptions. Each child is to some extent a law unto itself, and this is especially true of those children with nervous or exudative diathesis.

In conclusion, I wish to make a plea for greater uniformity in our rules for infant-feeding. Even more than in strictly medical affairs has the public the right to demand information. Heretofore, every new book and every public lecture on infant-feeding has deviated markedly from its predecessors, until the confused laity, and even general practitioners, have turned in disgust to proprietary foods and formulas. Pediatrics is a new science, and as such is bound to undergo rapid changes and conflicting opinions. But that need not hinder us from agreeing on certain fundamental facts which can be given as guides to the general practitioner and to the public.

I believe that the simple rules for infant-feeding here laid down are neither too conservative nor too radical to serve as a basis of agreement upon which the medical profession may show to

the public a united front on this important question. Such uniformity of opinion—and the sooner it can be reached the better—will not fail to have a beneficial effect on both the profession and the public.

#### DISCUSSION

DR. JACOB HVOSLOF: I would like to ask about the value of lime-water added to the milk. I recently had an experience where I mixed an ounce of lime-water to a pint of milk, as I thought that would improve it, but for some reason or other the baby would not digest his milk. After a while I left the lime-water out, and everything went well. Whether this is a "post" or "propter" I should like to find out.

DR. O. R. BRYANT: In case of an exudative diathesis, where you probably will start solids early, you will also be able to use meat earlier. An infant that does well on solids at six months can probably have meat once a day at fifteen months and show a normal stool.

DR. S. R. MAXEINER: I would like to ask Dr. Huenecken where he classes eggs and egg albumin.

DR. C. G. WESTON: I have been very much interested in Dr. Huenecken's paper. I care only for the babies during the three or four weeks after birth; and of late years many of them have passed from me directly into the hands of the pediatricists. I formerly had the babies nursed every three hours, but finding that the baby specialist immediately, on assuming charge, put them on the four-hour schedule, I changed, about a year and a half ago, to that interval; and I thought my troubles would cease, but such has not been the case, and it has been my impression, as well as that of the nurses who have had the care of the infants, that it has made very little difference.

The four-hour schedule is not a new thing in Minneapolis. Many of the older members of this Society may remember that twenty years ago Dr. R. O. Beard always fed his babies in this way.

It seems to me that we should make no hard and fast rules for the feeding of babies, except the one that mother's milk should be used whenever possible. We should individualize with the babies. If they do well on the four-hour schedule, follow it, as it makes the care of the child easier for the mother; if, however, the child does not get sufficient milk on this interval to properly nourish it, diminish the latter to three hours.

The only way to accurately determine how much milk the nursing infant is getting, is to weigh the baby before and after nursing. One is often surprised at the varying amounts obtained by the same baby at different nursings with no obvious difference in the condition of the breasts. We have had a baby obtain as much as three ounces in the first five minutes of nursing, and at the next feeding take only one or one and a half ounces in twenty minutes.

The green and frequent stools, with evidences of colic, etc., are often found to be due to too much milk, or taking it too rapidly; and the weighing method is the only way to determine this.

I most heartily endorse what Dr. Huenecken said with reference to the importance of encouraging in every way maternal nursing. Many a mother gives up the attempt to nurse her baby on account of some soreness of the nipples or because she has thought she had



too little milk to be of any use. Most of these cases may become, by the means recommended by the reader, good milkers, and many a baby's life may thus be saved.

DR. E. K. GREEN: I would like to ask a question in regard to putting babies on cow's milk. I have adhered very closely to the principle that modified cow's milk is absolutely the best food for infants, if it is impossible to get mother's milk, but many times when I have had the opportunity to follow these cases carefully I have had all sorts of stomach and bowel disturbances on cow's milk until someone would suggest some other food, such as malted milk, or Mellin's Food, or even condensed milk, which seems to be the farthest from the natural food, and then the babies would get along fairly well. Is this a common experience, or is there something wrong with my method? We have in our own home two children brought up on the bottle, one with malted milk and the other with Mellin's Food. In both these cases I tried, not only once, but several times to use the modified cow's milk, but failed absolutely. I would like to know if you consider the fault usually with the modified milk, or does the individual have considerable to do with the case?

DR. A. S. FLEMING: I would like to ask if in the case of the healthy infant the mother's diet would modify the constituents of the milk otherwise than in the facts stated. For instance, will it modify the character of or the percentage of the sugar, or will any of the aromatic constituents disturb the infant's digestion?

DR. M. J. JENSEN: Dr. Huenekens dealt with the feeding of the healthy infant only. I would like to ask if it is not true that nearly all infants born alive, are born as healthy and sound as any infant ever is, so far as the functions of its organs and tissues are concerned? Nature frequently decides on producing premature births and "still"-births, rather than running the risk of producing a sick or sickly infant. In young infants it is very often difficult to determine when to classify them as healthy or unhealthy, realizing the conditions of their environment and usual care that is given in the homes.

In regard to the sterilization or boiling of cow's milk: I do not think that children fed on pasteurized or boiled milk develop as well as those who are fed upon raw milk as it comes from the cow. Dr. Palmer, of Chicago, fed seven hundred children on raw milk during the midsummer months and only lost three of the number. The miserable, atrophied children began to live the moment treatment with raw milk was begun. If the process of milking was carried out in a sanitary manner, or by means of a suction apparatus, then cooled, and placed in sterilized bottles, I believe we would prohibit the development of bacteria, and save the food which exerts so marked a protective influence upon the infant's organs.

When raw milk free of all objections cannot be obtained, it is sometimes advisable to use another milk product namely, buttermilk.

DR. S. MARX WHITE: There is just one point I have been thinking about in the discussion on the question of infant-feeding, and that is whether Dr. Huenekens really means us to believe that in practically all cases the mother can furnish sufficient milk for the child. He passed that over in saying that in nine out of ten cases the mother gave as a reason for discontinuing the milk that the milk gave out. Is it not true that in a

good many instances the mother needs treatment quite as much as the infant? I do not mean medical treatment, but management. Is it not true that an overworked, tired, nervous, worrying mother is unable to supply sufficient milk for the child? It has been my impression from a very limited experience in this field, that the mental and nervous and physical state of the mother is a very large factor in the production of the milk. When upset and under deleterious influences she is really not a proper producer for the child; and the management of the mother is often quite as important a factor as any other.

DR. W. H. AURAND: In such cases as Dr. White just mentioned, what are we going to do to increase the supply of milk? Also, I would like to ask Dr. Huenekens if he means to feed to the new-born baby 200 c.c. at a feeding?

DR. HUENEKENS (closing): As regards lime-water: I cannot recommend its use. Wherever there is a specific demand for calcium, as in premature infants or spasmophilic cases; or where it may help to produce a firm stool; or, as in diarrheal disturbances, it may be of great value, but in the normal healthy infant it is of no benefit whatever.

Dr. Bryant mentioned the giving of meat in exudative diathesis: His statement that such infants can probably have meat once a day at fifteen months, and show normal stools, is beside the question. A normal macroscopic stool does not necessarily mean that the meat has been digested. However, I am now working on this problem, that is, to determine whether an early solid diet produces an earlier digestion of meat.

I would classify eggs and egg albumin as proteins, and therefore not digestible until the beginning of the third year; but, over and above this, there is danger of anaphylaxis from the absorption of the unchanged egg albumin into the blood-stream.

What Dr. Weston says of the feeding intervals is very interesting. I do not want to be considered an enemy of the four-hour feeding, for I use it wherever possible, and I think it the best interval; but when the infant cannot get enough in that period, we have to choose between two evils. I think the lesser evil is to give the child more milk at shorter intervals, and take the risk of a slightly poorer digestion. We should, also, wherever possible, control the amount of breast-milk by weighing the child before and after nursing. It is highly important to determine whether the baby is getting too much or too little.

As to Dr. Green's statement, "Modified milk" is a very general term. What is usually meant is milk with a high percentage of fat and a low percentage of sugar, while malted and condensed milk have a high percentage of carbohydrate. In my opinion, if he had used cow's milk without the addition of cream and with large amounts of cane sugar, he would not have had this trouble. But a large number of children will not do well on this diet. We have special rules for abnormal children with exudative and nervous diathesis.

In reply to Dr. Fleming's question regarding the mother's diet and its effect on her milk: What the mother eats has absolutely no effect on the composition of the milk in any way whatever, except perhaps in the percentage of fat. Now-a-days we do not advise any particular foods for the mother's diet,—anything she likes, and can digest, plus large quantities of fluid;

—otherwise there is no single food we advocate—none that will make the milk richer or better, or increase the quantity.

I cannot agree with Dr. Jensen that raw milk is so far superior to boiled milk. Of course, wherever it is possible, we should use certified milk, which does not require boiling; but, if we have inferior cow's milk contaminated with bacteria, we can boil the milk with very little harm. It is just as well digested, and the food value just as great. There is of course slight danger of scurvy; but that is very easily diagnosed, and very easily cured by a little fresh milk or small doses of orange juice. Where we have inferior milk, it should be boiled in every case.

Dr. White brought up a very interesting point in regard to nervous mothers. Their milk supply is subject to wide fluctuations; but, if the breasts are well emptied at each nursing, they will secrete sufficient milk. I will admit that these cases are difficult to handle, for the infants usually have nervous diathesis,

and do not respond well to ordinary food. The one important point is to completely empty the breasts; and that is the only measure we can take to increase the supply of milk.

In reply to Dr. Aurand: I would feed a new-born infant 200 c.c. at a feeding if the milk is sufficiently diluted. The liquid part of the food passes very quickly into the duodenum, so that, before the infant has finished feeding, a part of this quantity has already left the stomach.

In conclusion: We have an opportunity in our infant-feeding to practice the really scientific prophylactic medicine of the future. We can do more in preventing infant-mortality by proper feeding than by any other single measure; and we should encourage mothers to bring their new-born infants to the physician for advice on feeding, and to continue to consult him at longer or shorter intervals during the whole of the first year of life.

## THE INEBRIATE\*

By GEORGE H. FREEMAN, M. D.

Superintendent of the Minnesota State Hospital for Inebriates  
WILLMAR, MINNESOTA

The Minnesota Legislature of 1907 passed a bill establishing the Hospital Farm for Inebriates, placing its management under the State Board of Control, and providing for its maintenance by setting aside 2 per cent of the saloon-license money for that purpose. Later, a law was enacted providing for the issuance of certificates of indebtedness; and active construction work soon commenced. The Hospital was opened on Dec. 26, 1912, with Dr. Tomlinson, formerly Superintendent of the St. Peter State Hospital, at its head. Through his untimely death, five months later, Minnesota lost one of her most faithful officials. The principles underlying the work at Willmar, are, with but slight change, those that he so earnestly advocated.

This paper is based upon the study of the patients admitted from the opening of the Hospital until the close of the biennial period, on July 31, 1914,—approximately eighteen months.

Patients are admitted to the Hospital following an examination in a probate court. In such cases there is no expense to the patient's relatives, except that they are expected to furnish clothing, and a little money for the purchase of tobacco and small luxuries. Voluntary patients are also received following their own application in a probate court. They pay at the rate of \$1.00 a

day, each month in advance. No distinction is made in the treatment of the two classes of patients, except that a voluntary patient cannot be detained if he wishes to leave. Any resident of Minnesota who is habitually addicted to the use of alcohol, morphine, cocaine, or other narcotics, may be admitted to the institution, provided the history of the patient, as furnished by a probate court, indicates that the man can be benefited by treatment. It is presumed that anyone can be benefited who wants to be, unless afflicted with irremediable chronic disease.

The requirement that the history be furnished, and the ability to refuse admission, have kept out of the Hospital many undesirable individuals who could be cared for only under the discipline of a well-regulated reformatory. However, some, no matter how carefully the history is taken, slip by. The majority of those discharged as not proper subjects, come from that class. As there are no accommodations for individuals suffering with tuberculosis, no one known to be suffering with that disease is admitted. Once in a while a tuberculosis individual gains admittance, but, if not too ill to be released, he is discharged.

During the eighteen-month period, 209 men and 32 women were regularly committed; and 18 men and 3 women were received as voluntary patients. In addition to those classified as voluntary patients, a considerable number have, of

\*Read at the 46th annual meeting of the Minnesota State Medical Association, St. Paul, October 1 and 2, 1914.

their own volition, applied for treatment, and, being unable to pay, have submitted to commitment, in order to obtain treatment for their habit.

There has been a fairly uniform increase in the number of patients received each month, which is gratifying, as showing the need of such an institution and also as an appreciation of the benefit that may be expected. During the last month of the period, twenty-five patients were admitted.

While the causes of inebriety are diverse, it is a significant fact that 182 patients, out of 262, assign associates as their reason for drinking; and observation of their history clearly shows that they have drifted along, drinking now and then and more and more each year. A few assign illness, domestic trouble, or financial worry as a cause for drinking. In only 6 instances was heredity noted. In 132 cases the parents were abstainers.

We have found it impossible to formulate any system of classification of the unfortunates under our care. In order that some idea may be obtained as to the number using alcohol and the various drugs, we have constructed the following table:

FORMS OF INEBRIETY

	Men	Women
Steady drinkers .....	130	2
Periodical drinkers.....	76	8
Morphinism .....	3	11
Alcohol-morphine .....	5	2
Alcohol-cocaine .....	3	..
Alcohol-heroin .....	3	..
Alcohol-morphine-cocaine .....	3	1
Alcohol-morphine-cocaine-heroin ..	1	..
Alcohol-morphine-veronal .....	1	..
Morphine-cocaine .....	..	1
Morphine-cocaine-heroin .....	2	..
Total .....	227	35

The treatment of the inebriate naturally divides itself into two stages: the treatment, first, of the immediate effects of indulgence, and, second, such treatment as will tend to prevent a repetition of the indulgence. The treatment of the immediate effect of alcoholic indulgence is regarded as the easiest part of the work. While patients are at times received under the influence of intoxicants, in no case have they been unruly. For an obstreperous intoxicated person the quickest soberer is apomorphine judiciously used; but we have never yet resorted to it. Generally,

a fairly rapid reduction in the amount of alcohol consumed is made, instead of immediate withdrawal. Only in the most exceptional cases is alcohol given over three or four days. As a rule, during the first day it is given fairly freely. The treatment received during this period depends entirely upon the individual; and the treatment of one may be entirely different from that of another. Many receive baths at a temperature of 98° to 100° F. for thirty or sixty minutes for nervousness and sleeplessness. Some receive the coal-tar hypnotics, veronal or sulphonal; the more restless, hyoscine; and for others paraldehyde is used,—and occasionally chloral is used in combination with hyoscine and cannabis indica.

As long as he receives alcohol, the patient remains in bed and receives only liquid diet. In cases of considerable digestive disturbance, capicum is freely used, but we have seldom found it necessary.

All receive preliminary catharsis, but no attempt is made at prolonged elimination in that way.

For about a month tonic treatment with strychnine nitrate is used in doses of 1-20 to 1-40 gr. three times a day. Any other medication depends entirely upon the physical condition of the patient as revealed on examination. Only under the most exceptional circumstances are drugs given in alcoholic vehicle.

In morphine or cocaine users, the reduction is usually made more gradually, requiring a week to ten days. Generally, we find a patient comfortable with one-half the drug he has been accustomed to taking. In some cases we find it best to reduce the quantity to about one-half grain, and then abruptly cease.

Under this plan, diarrhea, cramps, restlessness, and insomnia are much less marked. We regard the free use of the prolonged warm bath as more advantageous to those addicted to drugs than to alcohol. Generally, it is the only measure that seems to offer relief. We particularly do not use hypodermic medication in any drug users.

Heroin users, who seemingly are more numerous, receive their drug only once in twenty-four hours. The withdrawal of the drug does not cause the discomfort that the withdrawal of morphine causes. Vague sensations of discomfort, some perspiration, and insomnia are met with in such cases.

No users of cocaine only have been met with,



but in mixed forms this drug is at once withdrawn.

The removal of alcohol or drugs is the easiest part of the work. Under the regular discipline of the institution, and the absence of temptation, the great majority of patients get along without any trouble because of abstinence. But there is the future to fear. The patient must go out into the world again, and engage in the daily struggle for his livelihood. One must aim to put him in such condition that he may be able to resist the temptations that will surround him on every hand. Our work, then, is to build up and re-educate, to strive to form a new character, to encourage a habit of sobriety, instead of drunkenness, to teach the man to work, to occupy himself, to obtain for him a new outlook on life, and to teach him his duty to himself, to his family, and to his neighbor. Here is where our difficulty begins. Nearly every inebriate has a firm belief in his ability to abstain from alcohol or drugs at any time and under any condition, because he thinks he is not really responsible for the condition into which he has fallen, and that, had not certain things happened, he would not have been drinking.

He is insistent in iterating and reiterating that he has now made up his mind to stop drinking, and that is all that is necessary. Though admitting that, for five, ten, or fifteen years, he has been going steadily downward, he has full confidence in himself, and he believes injustice is being done him when his parole is refused and he learns that he is expected to remain until he has strength to resist temptation.

In this upbuilding of body and character the following are essential: regularity of habits, discipline, work, food, and recreation, together with the personal influence of the physician and those coming into close and personal contact with the patient.

Regular work is one of the most valuable of the remedial agents at our command. It should be suited to the individual, and, as a rule, should not be that to which the man has been accustomed. Particularly is this true of the man who is used to mental labor only,—the clerk, the physician, the pharmacist, the merchant, etc. For them out-of-door work on the farm, lawn, or in the garden, is the very best, and next comes indoor shop-work. We must provide something that engages time and attention, that provides some new outlook upon life, and enlarges some field of endeavor in which the patient has labored before coming to the Hospital. Thus far the

work has been on the farm or the improvement of the grounds, or has been carpenter, cement, or some construction work. The women do all the mending, and make all needed articles, such as bedding, towels, etc. They also work in the laundry. At present we are teaching embroidery of various kinds, no one of our patients having ever learned any such work.

The future must see us provided with shops, especially for winter work. With a capacity of ninety-nine men we are able to keep them fairly well occupied during the winter months, but any increase will have to be cared for under special conditions.

A very important factor is the length of time, as mentioned above under prognosis, that a patient remains under care. As a general thing, it is expected that the average patient will remain, approximately, six months. The period of detention is determined only after a study of the individual. An endeavor is made to consider all factors that may influence the future life of the patient,—the length of time and the amount he has been drinking, the effect on his character and physical health, the surroundings and occupation to which he must return. Some patients are paroled at the end of six months, some remain seven months. Drug users require treatment for a much longer period of time than users of liquor; and they remain from nine months to a year. The law provides that a patient shall not be paroled in less than two months, nor shall he be detained longer than two years without parole. This, of course, introduces the disagreeable aspect of the work. The detention is compulsory; and in some patients antagonism possibly over-balances the benefit of detention.

"One of the most pronounced features of inebriety is, however, the inability of many inebriates to appreciate the necessity for treatment; and the more severe the inebriety, the less easy it is first to get the patient under treatment at all, and, secondly, to get him to remain long enough for any treatment to have a permanent curative effect. One has only to work among inebriates, no matter to what class of society they belong, to know that fear of interfering with the liberty of a subject who has no real liberty, in that he is a slave habitually or periodically to the drink craze, results in the interference with the liberty of all those who have to put up with his irresponsible behavior under the influence of alcohol and other narcotic drugs.

"Were the treatment of the inebriate only possible in a free sanatorium, only a small minority

of inebriates would come under treatment at all, and these would be of the less severe type." (Pathological Inebriety, by J. W. Ashley Cooper, 1913.)

Discipline is of great importance, but great care must be taken in its enforcement. It is of more value for one to perform a certain duty because one regards it either as the proper thing or as likely to benefit one's self or others.

The personal influence of those who come into close contact with the inebriate can hardly be overestimated. He is easily influenced, often easily led, and a few thoughtless words or careless actions can undo the result of patient work.

All factors that may influence the future life of the patient must be taken into consideration,—the length of time and amount he has been drinking, the effect on his physical health and character, and the surroundings and occupation to which he must return. Very often the cause of the commencement of the patient's excessive drinking may be removed or may have disappeared. Such would favorably influence the prognosis.

The presence or absence of irremediable disease is important. For instance, a woman recently committed to our care suffered from what was supposed to be, or was, neuralgia. She still has occasional twinges of pain; but we believe when the dentist has finished his work these will disappear, and her prospect be reasonably bright. A man, 56 years of age, four years ago, suffering from stone in the bladder, was given morphine, following an operation. The bladder condition was permanently relieved, but he became a morphine user. Such a case is a promising one. In him the destruction of character is but little marked.

A boy, chasing around the city, acquired the cocaine habit, and became a loafer, drinker, and follower of loose women. For him the future offers practically no prospect. Were he a little younger, and had the attempt to rescue him been made earlier, there would have been much more promise. But I doubt whether he can withstand the lure of his former life. With a few drinks, his judgment becomes paralyzed, and he is back to cocaine again.

Another man, an alcoholic, a printer, became nervous and exhausted after six months of linotype work. He probably will not get over his drinking permanently unless he changes his occupation.

One of the most important factors as regards recovery is the length of time a patient remains

at the Hospital. It is sheer folly to expect that in a few short weeks a man shall have entirely recovered from the effect of excesses extending over a period of years, to expect him to regain a lost will power in that time.

Another important factor is the insight a patient obtains into his own condition. We cannot claim to make a man stop drinking. All we can do, is to place him in such mental and physical health that it is unnecessary for him to resort to stimulants.

#### RESULTS

The result of treatment in a disease of the nature of inebriety, can hardly be estimated in such time as the Hospital has been open. Our statistics are simply offered to show possibilities. As the statute under which the Hospital operates, contemplates a period of detention and treatment for not less than two months,—and that period is even too short in the vast majority of cases,—anyone resident in the Hospital for less than two months has been placed in a separate class, and we can learn that only two of these are doing well. Of 172 men, aside from those who have been discharged as not proper subjects, 54 were paroled, of whom 37, or 68 per cent, are reported as doing well, 27 were released under bond, of whom 17, or 63 per cent, are reporting. Over one-half of the voluntary patients are reporting.

Averaging all, we find 57 reporting as doing well; 30 fail to report; 29 are escaped, and we can learn nothing of them; and 56 were here less than two months, 38 of these being escaped; 7 voluntary patients; and 8 were released under bond. A percentage of abstainers of 25, is to be regarded as most excellent; and as one-third of those who have left here are still abstaining, the greater number of failures occurring in the first month, the outlook for the future is very encouraging.

So far, we have been speaking of what we are trying to do for the more hopeful class of patients. But what are we to do in the future with the incurable, the recidivists? Are we to send them back into the world time and again, let them abuse themselves, perchance their families, and let them be, as it were, a constant menace to society? No, society has a right to protect itself and to protect an individual against himself. There should be provision made for this class. They should be cared for in an institution under strict discipline, and made to support themselves there and to contribute to the support of those who may be dependent upon them.

As soon as considerable numbers are received at an institution, the more apparent becomes the need of means for classification, especially as to character. It is decidedly unwise to allow the intermingling of the young lad who has just commenced to drink, with the incorrigible or the sodden, whose every thought may be bestial.

The most practical means of classification is by the use of cottages; and it is on that plan that Minnesota's institution has been started. If two cottages were built at Willmar we should be able to make four groups of patients with decided advantage to our inmates. Not more than forty inmates should be cared for in each cottage; and I am strongly in favor of separate rooms for sleeping-quarters, instead of dormitories.

#### SUMMARY

The essential in the treatment of the inebriate as we meet him, is upbuilding of body and character, which requires time, and in which drugs play only a small part.

Compulsory abstinence is of great value if we expect to care for a majority of the inebriates.

It would be wise for the State to undertake the custody, care and control of all non-criminal inebriates in one institution, provided adequate facilities for classification were available.

#### DISCUSSION

DR. C. R. BALL (St. Paul): I have been very much interested this afternoon in this symposium on the treatment of fractures, the last word in obstetrics, and the inebriate, only it seems to me the Program Committee put the cart before the horse, and should have put the inebriate first, and the other things would naturally follow afterwards.

Dr. Freeman has splendidly presented his work and results at the Willmar institution. It is a subject to which I think medical men pay too little attention. I have more and more come to look upon the inebriate as a type of nervous disease and, in the great majority of cases, a functional nervous disease. It may be classified as we classify nervous diseases. We classify in one way functional nervous diseases as to their cause,—acquired, hereditary and acquired, or wholly hereditary.

The inebriate may be also classed in the same way. There are perhaps a few cases in which the habit of taking alcohol is absolutely acquired, but they are comparatively few. There are also a few cases of nervous prostration or functional nervous conditions from overwork, from a depleted condition, where the nervous condition comes on; and we may say it is acquired, and the prognosis in both of these cases is good. It requires but little effort to put them on their feet. Then we have that larger class of neurasthenic or functional nervous conditions, belonging to the second group, in which the nervous disease, as well as the inebriety, is partially acquired and partially hereditary. There is a

large class here. They have an unstable nervous system, and whether they drink or break down depends a great deal upon the environment and physical condition. This type of inebriate must be treated along the same broad lines that we treat a person who is a neurasthenic, who is subject to repeated nervous breakdowns.

There is another type which, unfortunately, is rather large; and this is the wholly hereditary, and in this type we may classify the dipsomaniac. I have looked for a long time upon dipsomania as a periodical nervous disturbance, similar to periodical attacks of migraine or epilepsy, or periodical attacks of insanity. Often where a son is an inebriate we find a history of migraine in the mother. Very often there is insanity, and very often there is epilepsy, so that when we come to consider the dipsomaniac we have a tremendous problem. He does not drink for the fun of it, but chiefly because of mental depression, mental restlessness, which is so great that he turns to alcohol to buoy up his spirits and get rid of the feeling which rather than suffer with, he would often prefer to die. I have a man of that description who came to me, and said that at a certain time he became depressed and suspicious, began to hate himself, went along the back streets, absented himself from his usual associates, and always did this at the beginning of his drinking bout. That is the case with all dipsomaniacs. It is a disease similar to epilepsy, and our success in treating this type is just about as good as in treating epilepsy. It is not the alcohol; it is an inherited condition; it is a periodical nervous disturbance, just as epilepsy and migraine are.

We hear a great deal about the prevention of tuberculosis, and much is done to prevent it. I think we hear much more about the evil effects of syphilis than of alcohol, but, in my experience, I would place alcohol at the top of the list as being the most damaging both to the individual himself and to his offspring. We have heard a great deal about the effect on the offspring. In my clinic at the Free Dispensary I have many epileptic children, and I should say in sixty per cent of the cases one parent is an alcoholic. An address of Dr. Rogers, of Faribault, with reference to the ill effects of one intoxication, when a conception occurs during that time, put the subject of drinking before me in a new light. Much interesting experimentation has within recent years been done with rabbits and guinea-pigs to show the harmful effect of a single dose of alcohol given to either the male or female parent before conception, on the after-coming litter.

Not long ago I read an article by some man in New York in which he stated he had traced seven cases of epilepsy to the evil results of a single intoxication in seven different parents. That was something rather new to me, as I thought, in order to get the bad effects, on the descendants, of alcohol, it was necessary to be a chronic alcoholic, and I believe very few of the laity understand that, if conception happens to occur during one drunk, the parent being otherwise a temperate person, the ill effects may be visited on the offspring to as great an extent as if the parent were a chronic inebriate. These are some of the things which would do good if given publicly.

In regard to the treatment: I can fully agree with



Dr. Freeman in everything he has said. There is certainly no specific when you come to consider the nature of the trouble. The treatment must be carried along the same general lines of physical and moral upbuilding as those we seek to follow in functional nervous disease.

DR. W. A. JONES (Minneapolis): I wonder how many members of the State Association have visited the hospital for inebriates at Willmar. I would like to ask all those who have, to hold up their hands. Five or six of this audience, representing the twelve hundred doctors belonging to this Association. That gives one a fair estimate of those familiar with the State farm for inebriates. I should like to know further how many members of the legislature have visited this institution, and how many have tried to condemn it or perhaps to take it for a tuberculosis hospital. That is what they will do unless we physicians stand by Dr. Freeman and the institution.

There is too much sentiment, too much sympathy among friends, relatives, courts, juries, and charity workers, as to the inebriate; but once he gets to Willmar and is under a proper regimen, his attitude changes totally toward himself and toward the world. After one has watched the treatment at Willmar and has seen the benefit these patients derive, he wonders why so many women and so many men are sent to quack institutions for inebriety and drug habits. Willmar costs the patient practically nothing, except a small per capita borne by the State. The average quack institution charges \$150.00 for a cure, so called, whether the cure lasts for three days, or, as in some of the more conservative (?) quack institutions, the period is extended to ten days, and in the notoriously drink-habit cures, to thirty days. This ought to appeal to a doctor forcibly, inasmuch as all these claims of cures made by quack institutions are limited to thirty days at the outside, an absolutely absurd statement, and, for that reason, if for none other, we should all support and entertain anything that tends to increase the efficiency of the State farm for inebriates at Willmar.

One thing which Dr. Freeman wants to emphasize is the necessity at times of forcible restraint in a building especially constructed for detention cases. There is a small class of people who are, perhaps, suffering from a disease state, who are irresponsible. Most of them are common drunkards, who create all sorts of disturbances and who really need discipline—who need to be detained forcibly for a sufficient length of time to enable them to recover their normal physical tone, and until they recover something of their natural mental tone. If this could be incorporated in the rules and regulations of the governing body of the inebriate farm it would make a great increase in the total number of improvements and recoveries.

Dr. Freeman has emphasized the necessity of getting the physical condition up to a high point. He has said all that is really needed on the subject. I believe drugs and drink should be reduced rapidly in almost every case. If you look over some of the literature of some institutions that take these people, you will find they reduce the morphine down from fifty grains to forty, and then to thirty-nine, until, finally, after a period of so many weeks or months, they cut it down to the two-hundredth of a grain, and give it hypodermically. You can readily see the absurdity of that treatment.

The average man can have the total reduction made within thirty-six or forty-eight hours.

I hope you will take more interest in the inebriate farm, and see that your legislator is interested as well.

DR. HALDOR SNEVE (St. Paul): I have listened with a great deal of pleasure to Dr. Freeman's paper, and especially because there are some statistics as to what can be accomplished in such an institution even in a comparatively short time. Personally, I think that six months as an average time to stay in this institution would be too short. It will be found, however, in time, whether this is true, but just now the institution is in the experimental trial stage.

A great many legislators are, as Dr. Jones said, trying to convert this institution either into an insane asylum or a tuberculosis sanatorium; and it is up to the profession of the state to back up the establishment of this institution for the treatment of a class which is growing.

Personally, I think drink is a vice and not a disease, and until we can eradicate from the minds of the laity and from the minds of some physicians the idea that a man who drinks is some sort of a nervous invalid, the sooner we shall get better results in the handling of this question. Even the dipsomaniac has periodic brain-storms, which Dr. Ball has likened to attacks of migraine; that is a good simile, they do not always take to drink, but go off in other ways.

I have treated from twenty to fifty cases of delirium tremens at the City Hospital every year for twenty years, and I have had considerable experience in institutions; and yet I cannot find anything to criticize about the principles of treatment that Dr. Freeman has put forth here today. The idea in the minds of the laity is that inebriety is a disease, and they want drugs for it to make them well, and that is one reason why so many patients go to Keeley cures and get well. They go there because they find a drug that cures *disease*. I find that the Towne-Lambert treatment is an excellent *mental* treatment for the inebriate in private practice. It can be used in the institution at Willmar, as well as in private practice, and putting a patient upon the Towne-Lambert treatment satisfies his desire to cure the disease he is suffering from.

I think the profession will have to keep their eyes on the legislators, perhaps on the new governor, and see that this institution is not thrown into the wastebasket, so to speak, or converted into some other sort of institution, because we need a place of this kind. Even if Minnesota can go prohibition pretty soon—and I rather think it will—we shall not get rid of our drunkards for that reason. We shall still have to have a hospital for the treatment of the morphine, cocaine, and alcoholic habits. The doctors who send patients to Willmar, I think, ought to be careful, and not try to help some municipality out of taking care of old battered hulks, who cannot hope to recover, who cannot be made well simply because they have been drinking for so many years, and their other habits of life have resulted in such a deterioration of the brain that there is no possibility of bringing them back and making really good citizens of them. Those patients should be kept in a work-house or in a special department at Willmar or some other place. We should try to reclaim all of our young men and young women habitues.

Owing to the absence of proper writeups about this

hospital it is not generally known throughout the state that pay-patients can be received and treated just as in any sanitarium and at very moderate rates.

DR. FREEMAN (closing): I really have nothing to add in closing except to say a word with regard to prohibition. I have a second-hand statement from the police of one of the Twin Cities that he is positive in his city there are five thousand drug-users from his experience in the police court.

With regard to the maintenance of discipline at the institution: We have sufficient law or authority for discipline, but we have not the facilities. The thing in my opinion that we mostly require is a building where we can take care of a man who is incorrigible, or a man

who runs away. For two reasons: In the first place, I have known a number of men who came there unwillingly, who later were greatly benefited by their compulsory stay; second, the effect of disciplinary measures upon the population in general. If a man knows that, when he goes there, he must stay, he naturally gets over his constant thought that he is going to sneak away, and put it over. The custodial cottage to take care of forty people would allow, in all, four classes of patients. We should have a reception-ward in which to examine all new patients; one ward for the incorrigible; and we should have two other places to care for two classes of men received. This would prevent the influence of the older men who have gone further in their habits upon the young boy who has just started.

## DIAGNOSIS OF INTRACRANIAL COMPLICATIONS IN DISEASES OF THE MIDDLE EAR AND ACCESSORY SINUSES OF THE NOSE\*

BY JOSEPH C. BECK, M. D.  
CHICAGO.

The most important causes of intracranial complication from the middle ear and nasal accessory sinuses, are suppurations, consequently I shall confine my remarks to that subject, and not take up the neoplasms, trauma, etc.

In the diagnosis it is most important to recognize suppurative disease of the ear and sinuses, but this subject is not within the province of this paper, therefore I shall satisfy myself by mentioning only that the presence of the pus from the middle ear and nose, and Roentgenographic examination, are the most important signs of affections of these structures. The one symptom more than any other on the part of the patient of a threatening extension into the cranial cavity, is localized pain or headache, which is very persistent, instead of periodic. Especially important is this in connection with the cessation or diminution of the discharge. The knowledge of the pathological change present in the sinuses and middle ear and mastoid, is of additional value as, for instance, tuberculosis, syphilis, and cholesteatoma.

The frequency of intracranial complication in suppuration of the middle ear is much greater than that following sinus disease, about twenty-five to one in my experience.

The intracranial complications which I shall consider are—

1. Meningitis.
2. Sinus thrombosis.
3. Brain abscess.

The meningitis may be serous or suppurative, and later localized or diffuse.

The sinus thrombosis may be partial or parietal, and complete with or without involvement of the jugular bulb and vein. The brain abscess may be extradural or genuine within the brain substance proper. The complications may be further divided as to bacteriologic or etiologic factors as, for instance—

Streptococcic  
Staphylococcic  
Pneumococcic  
Tuberculous  
Syphilitic

These complications may arise following acute, or chronic and acute, exacerbation of chronic suppuration of the ear and sinuses. Meningitis and sinus thrombosis (this latter condition is very frequently associated with a localized meningitis) are usually complications following acute, or acute exacerbation of chronic, suppuration of the ear and sinuses. Brain abscess, however, is most frequently associated with the chronic form of the ear and sinus disease; but these become more manifest following an acute attack of ear or sinus trouble. Tubercular or syphilitic meningitis is chronic inflammation *per se*; but these conditions are also lit up by the acute processes within the ear and sinuses.

The cardinal symptoms of any intracranial complications are—

1. *Pain or headache.*—This may be localized or diffuse; it is, however, very persistent and quite intense. It is in the recognition of this

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symptom that has helped me more than any other in suspecting intracranial trouble.

2. *Nausea and vomiting*.—This symptom is quite constant, especially early in the disease; and projectile vomiting is quite characteristic of intracranial pressure or irritation.

3. *General septic appearance*.—This of course will vary in the different conditions under consideration, but in all is it quite manifest.

4. *The vision* is very frequently affected due to the choked disk that is present.

5. *Temperature, pulse, and respiration* are very frequently disturbed.

6. *Definite focal symptoms* of brain localization are of the utmost importance in the diagnosis.

7. *Blood and spinal fluid examinations* give very valuable information.

8. *Röntgenographic findings* are at times valuable.

9. *Exploratory operation and treatment*, as in lues, is at times necessary to make a diagnosis.

#### MENINGITIS

(a) *Serous meningitis*.—One of the first signs is the increasing headache, at first localized, usually near the seat of the perforation or path of infection, and soon becoming diffuse over the head. The patient loses his appetite, his tongue becomes coated, the emunctories become sluggish in their action, and nausea is a very common symptom. The temperature rises, and, if the septic form is going to follow, this rise is often quite rapid, so that there may occur small chills from the infection of the cerebrospinal fluid. The pulse and respiration rate is now considerably increased. The patient is very irritable and restless, and does not sleep. As soon as the fluid increases within the cavity there is observed the characteristic syndrome of rolling the eyes, especially upward, the neck is drawn backwards, and finally the leg upon the thigh and thigh upon the abdomen. Attempts to straighten them out is resisted and appears to be painful,—Kernig's sign.

Stroking the bottom of the feet with some semisharp instrument or the finger-nail will cause the big toe to turn up instead of down,—Babinski's sign.

Taking the head and tilting it forward against the chest will cause the limbs to be drawn up,—Brudzinski's sign.

All the other symptoms, as pressing over the peroneal nerve and muscle (Gordon's sign), which will cause the extension of the toes, the

stroking of the anterior tibial surface (Oppenheim's sign), or the stroking of the region of the external malleolus (Chaddock's sign), will produce retraction of the toes. All these signs, I say, prove that the upper neuron (within the cranium) is involved. The patient now will lapse into unconsciousness, and be roused with more or less difficulty to again relapse in the same condition. The pupils become sluggish in their action, at first becoming small, then irregular, and finally dilated.

Ophthalmoscopic examination may reveal a choked disk. Spinal puncture shows increased pressure by fluid very frequently coming through the hollow needle with a spurt, and clear or slightly cloudy. Following such a puncture the patient is very often much improved for from a half an hour to a whole day, but the symptoms soon return. A complete examination of the cerebrospinal fluid thus removed, will aid a great deal in diagnosis. This includes the following:

1. Remove about 25 c. c. at spinal puncture.
2. Make several slides and stains for organisms, as septic and tubercular.
3. Examine and count the endothelial cells, leucocytes, and pus cells.
4. Make cultures.
5. Make a Noguchi (butyric-acid) test for excess of albumin.
6. Make a Lange colloidal test.
7. Wassermann, Nonne, and Noguchi tests for syphilis.
8. Test for sugar.
9. Test for total acidity and relative acidity.
10. Cholin may be tested for.

In the serous form one will find the cells increased somewhat, especially the leucocytes, but the micro-organisms are conspicuous by their absence.

The Lange (colloidal-goldchloride) test will show the characteristic color reaction of a septic process.

The Noguchi (butyric-acid) test will be positive. Excess of albumin.

The Wassermann, Nonne and Noguchi tests for syphilis are negative. (Unless such a case should be a complicated one.)

The test for sugar is very important in that in serous meningitis sugar is present.

The relative acidity is not markedly affected, and cholin is not present, or, if so, in only small quantity.

(b) *Septic meningitis*.—If this is *localized*, and there is a collateral serous meningitis asso-



ciated with it, then the symptoms may be the same, as just described; however, the cerebrospinal fluid will show a greater degree of irritation, and the fluid may contain some micro-organisms. The majority of localized septic meningitis cases, however, are not as severe in their course as the serous or diffuse septic forms. The one important symptom is the localized headache, which is quite persistent, and the greater rise in the temperature. There are, undoubtedly, many cases of localized meningitis that show a perfectly normal cerebrospinal fluid, and most of the cardinal symptoms absent; and these are the cases that usually get well or lead to extradural abscesses subsequently.

The *diffuse septic meningitis* is the most discouraging intracranial complication that we have to deal with, and the diagnosis as a rule is not difficult. It usually is preceded by the serous form, but within a very short time develops the graver symptoms of sepsis. The most positive symptom is the spinal puncture. The fluid comes out under pressure, but not so great as in the serous form, and is turbid. The turbidity varies in degree with the amount of infection. It has the appearance at times of pure pus; in fact, that is what it is. Bacteriologically one will find many micro-organisms of the character of the infection; and leucocytes or pus cells are very numerous.

The sugar reaction is always absent, and the acidity is much increased as is the quantity of cholin.

The pressure or irritative symptoms as the Kernig and Babinski tests, as well as the pupillary reactions, are practically the same as in the serous meningitis, only that they soon give away to the paralytic form, namely; pupils dilate, patient is in a constant stupor or coma, and the involuntary urination and bowel movements become very manifest. The patient is, as a rule, unable to take or be given nourishment. The outcome is, in my experience, with one exception, always fatal, due to diffuse cerebritis. I have had a case of diffuse septic meningitis in the early stages of a pneumococcic type which I operated on by the Haynes' method of drainage of the cyscterna magna, and which recovered; and I believe that the success in that case was due to the very early intervention, because I have operated by the same method on eight other cases more advanced and of streptococcic and staphylococcic type of infection, which ended fatally.

*Sinus thrombosis.*—This complication is the one that is recognized as giving the best prog-

nosis because it can be very readily recognized, and even exploration is warranted to make such diagnosis. It most frequently follows, or is associated with, acute infections of the middle ear and mastoid process. The most important symptoms are the chills and fever of a distinct septic type, and, as a rule, increasing in frequency. There is invariably a blood-picture of sepsis, namely, a very high leucocyte count and the polymorphonuclear type in marked excess. Blood cultures are, as a rule, positive of a bacteremia. If the process has extended to the bulb and internal jugular vein, then one may feel a thickening or cord-like mass along the anterior border of the sterno-cleido-mastoid muscle. The fundus examination often reveals a choked disk, especially on the side where the thrombosis is located. A symptom recently described by Beck, of Vienna, and Crowe, of Baltimore, and proven by me to be of positive value in several cases, is the production or increase of a choked disk by compression of the healthy internal jugular vein. Urbanschitch has shown in quite a number of cases of sinus thrombosis that the blood-clotting time is very much enhanced. This of course is true of any case of bacteremia or septic phlebitis anywhere in the body. I have proven this test to be of value to me in several cases of sinus thrombosis. The exploratory exposure of the lateral sinus is of distinct value, and the only fact to remember is to expose a sufficient area so that one is able to deal with the sinus in case it be opened accidentally, because such an accident when this precaution was not taken has led to serious consequences.

The diagnosis of a thrombotic sinus when exposed is made first by its discoloration, usually of a grayish pink; secondly, it feels harder than normal and is not resilient when compressed, that is, it does not spring back. It, however, may be soft in case the thrombus has broken down; and in cases of parietal thrombosis it may spring back because there is blood circulating through it. One will at times find a small collection of pus about the sinus, a condition known as perisinus abscess, and in many instances of this condition the sinus itself is not thrombosed. The puncture of the sinus by a hypodermic needle and attempt to withdraw some blood, is not at present considered good practice owing to the danger of infecting a non-infected sinus. An incision is considered a wiser plan, and subsequently packing both sides (torcular and bulb) so they are shut off from the general circulation. There are many instances of secondary infection by embolism,

either in or about the joints, and infection into the lungs, spleen, pancreas, etc., with the entire train of symptoms from such complications.

*Brain Abscess.*—This is most frequently associated with chronic suppuration of the middle ear and mastoid, and labyrinthine disease. As stated before, we must consider two principal types, namely, those outside the dura and those within. They may exist at the same time, or the intradural abscess may frequently follow, especially in acute exacerbations, the extradural abscess. The paramount symptom is the great pain in the head, most frequently localized at or in close proximity to the abscess. I have, however, found several instances where the patient located the pain in the anterior portion of the head, and operation or post-mortem examination disclosed it in the posterior cerebral fossa. This pain is not at all unlike that in brain tumor, and there are exacerbations in the headaches sometimes at night, other times in the mornings, and in one of my cases the patient would have about ten attacks of severe head-pains within twenty-four hours, and in the intervals be fairly comfortable.

The next group of symptoms of importance are the focal lesions, which will correspond to the anatomicophysilogic locations and actions. These focal symptoms will vary in degree in that they be either irritative or destructive. So, for instance, a small abscess pressing over the motor area will cause clonic contraction and a still larger abscess, especially if it be intradural, will produce paralysis of that portion of the body governed by that particular area. Again, if it be located in the cerebellar region it will cause a train of symptoms of imbalance and loss of interpretation of direction, which must be carefully differentiated from the irritation of the labyrinth. In this department there has been much work done by Barany, Ruttin, Neumann, and other Viennese, and many others to make it possible to make a differential diagnosis; and there is a great deal more to be done. One of the most important recent contributions in this regard is the "pointing test" of Barany in connection with cerebellar lesions; and careful study and experimenting at every opportunity is very much recommended, in order to familiarize one's self with this test. This in connection with the various labyrinth tests makes the differential diagnosis much more easy. One must remember that both labyrinthian irritation in connection with suppuration of the ear and cerebel-

lar irritation from brain abscess may exist at the same time.

*Intracranial pressure*, being increased in brain abscess, will cause the cerebrospinal fluid to be increased and found to be so by spinal puncture, although no pus cells or micro-organisms will be found, unless there is also a concomitant diffuse septic meningitis or ventricular infection present. The ocular symptoms of intracranial pressure, such as pupillary (often one large and one small) and choked disk, are usually present. The *pulse rate* and *respiration* will be affected, as in brain tumor, according to the size of the abscess. The larger the abscess the slower the pulse and respiration. The temperature, as well as the pulse and respiration, will vary as to whether the abscess be intradural or extradural. Intradural abscesses will frequently cause considerable rise of temperature, and acceleration of the pulse and respiration, and a remission when the abscess has become partially walled off. As soon as a fresh invasion of brain tissue takes place another rise of temperature, etc., occurs.

*Projectile vomiting* is, as in brain tumor, quite frequently encountered.

*The Röntgenogram*, especially a stereoscopic one, will be of some value in cases where through its chronicity a change of bone by pressure has taken place, or if one may follow the path of necrosis from the nasal accessory sinuses or the middle ear and mastoid process towards the brain. I will state, however, as I have stated on several occasions before, that not too much emphasis should be laid on the diagnostic value of the x-ray in intracranial lesions, especially abscess. I have been disappointed in this great method of diagnosis (x-ray) and much annoyed at the positiveness of some observers without sufficient evidence.

As in sinus thrombosis, so in brain abscess one should not hesitate in the exploratory operation, because waiting too long will often reduce the patient's ability to stand an operation later on. Should one not find the abscess, then the decompression has done a great deal to prevent destruction of brain tissue by pressure, besides the patient will be very much relieved of the severe head-pains. This may be said also of spinal punctures. In this way one may wait for development of localization for another operation.

In conclusion, I would like to repeat the words

of Prof. Neumann as to the differential diagnosis between meningitis, sinus thrombosis, and brain abscess: "A patient that has meningitis is one that wishes to be left alone and allowed to sleep, although when roused is not particu-

larly irritable. If he has brain abscess then he is constantly very irritable and difficult to manage, while a patient that has sinus thrombosis when he is free from the chill and fever is very pleasant, apparently well."

## THE TREATMENT OF GONORRHEAL OPHTHALMIA

ARTHUR EDWARD SMITH, M. D.  
MINNEAPOLIS

In ophthalmology, as in other branches of medical science, the advance in therapeutics has hardly kept pace, in recent years, with that in pathology and diagnosis. Comparatively few of the therapeutic innovations of the past decade have stood the test of time; and, in the main, the ophthalmological *materia medica* of today bears a striking resemblance to that of fifteen or twenty years ago. Our poverty of therapeutic resource has been notably exemplified in the generally accepted method of treatment of gonorrheal ophthalmia; and the results obtained with the conventional treatment as outlined in the current text-books are far from satisfactory.

Gonorrheal ophthalmia, in both infants and adults, continues to cause an appalling amount of blindness; and only a part of this can, with justice, be ascribed to ignorance and neglect. The number of cases which, in spite of the most careful treatment, go on to corneal ulcer, perforation, panophthalmitis, and irreparable blindness, continues to be considerable. Further, a decided difference of opinion still exists among well-trained oculists of wide experience as to the best method of handling these cases. For over a hundred years silver nitrate has enjoyed an unquestioned pre-eminence in the treatment of the purulent ophthalmias, particularly those cases in which the gonococcus was the etiological factor; and even now to question its right to a place in the treatment of gonorrheal conjunctivitis seems to many to be as heretical as to abandon mercury in the treatment of syphilis. For many years the only difference of opinion in regard to silver nitrate seemed to be as to whether it should be employed in the first stage of the disease, or whether one should wait until the discharge became purulent. Of late years, however, a number of experienced oculists have gone on record as being of the opinion that the majority of these cases do distinctly better without the nitrate than with it. As is well known, the nitrate destroys only those gonococci lying upon the surface or in the

most superficial layers of the conjunctiva; and, far from reaching those in the deeper layers, rather forms a film over the surface which protects them from the irrigating solution used later. It also appears to be certain that the use of the nitrate, for a time at least, increases the ratio of extra- to intracellular gonococci in the discharge, which furnishes another valid argument against its use. That a subsequent chronic conjunctivitis with hypertrophy is often a disagreeable sequel in cases in which an energetic course of silver nitrate has been used is a matter of common observation. The vogue of certain of the organic silver salts, such as argyrol, protargol, etc., is no doubt, not so much due to any intrinsic therapeutic merit which they possess as to the fact that the average case gets along better without the local application of strong chemical antiseptics. However one may feel about the abandoning of such a time-honored drug as the nitrate of silver in the treatment of this disease, it must be conceded that it is entirely inadequate to control the process in the severer cases, and as a therapeutic sheet-anchor leaves a great deal to be desired.

The use of cold compresses in gonorrheal ophthalmia continues to be advocated in text-books and practiced in many clinics, especially in America, in spite of the fact that the progressive men in general medicine and surgery seem pretty generally to have abandoned the use of cold applications in the treatment of acute inflammations of bacterial origin. Any merit the cold compresses may have in the reducing of the edema and relieving pain are more than counterbalanced by the fact that the vitality of the tissues is at the same time lowered. In cases in which there is a sufficient swelling of the lids to cause a dangerous pressure on the eyeball, cold should not for a moment be depended upon to control the inflammatory edema but instant recourse had to canthotomy: in cases where this swelling is not marked cold compresses are unnecessary and apart from a certain analgesic effect, of no value.



The skepticism, which is becoming more general, in regard to the value of silver nitrate and cold applications has not extended to the third member of the classic trinity,—irrigations,—the efficacy of which seems to be generally conceded. Various substances have been advocated for this purpose,—boric acid, potassium permanganate, bichloride of mercury, normal salt solution, etc., and the consensus of opinion seems to be that it is practically indifferent which one of these is used, the action being mechanical rather than chemical. The ordinary method of half-hourly irrigations has been abandoned by Hosford, Ulbrich, and others in favor of the constant irrigation with the Hosford apparatus or some modification of it.

The English adherents of the constant irrigation treatment, who, for the most part, dispense with the use of silver nitrate altogether, report excellent results; but the method is not without its drawbacks. The apparatus is awkward to use, requires as much or more attention than the intermittent irrigations, and undoubtedly disturbs the rest of the patient at night more. Further, since the lids are, of course, not held apart for the constant irrigation, but the flow of the solution across the palpebral fissure is depended on to cleanse the eye of secretion, one is inclined to question whether the mechanical cleansing is as thorough as when the lids are gently held apart while the eye is being irrigated.

The more one sees of these cases, the more one is impressed with two things: first, that a certain percentage of them would make a complete and uncomplicated recovery, even if they were entirely untreated (undoubtedly this number is larger than we think, especially in children); second, that the usual treatment is entirely inadequate in those cases in which there is an especially virulent infection or a lowered resistance of the tissues. When antigonococcic serum was first developed and its action observed in cases of acute gonorrheal ophthalmia, the results were, as in acute urethritis, disappointing. Many oculists are of the opinion that the serum is entirely without value in acute blenorrhea, even though its use be indicated in metastatic eye disease of gonorrheal origin. Of late, however, at least two men in America have written enthusiastically of serum-therapy in acute gonorrheal conjunctivitis, advocating its employment in the usual manner and also its use locally, i. e., dropped into the conjunctival sac in place of the usual antiseptics. It would seem that the data

now available hardly warrant a positive statement in regard to the serum-therapy.

The pathological findings in gonorrheal ophthalmia are simple but significant, in that the gonococcus of Neisser is found, not only on the surface and in the superficial cells of the conjunctiva, but also, often within forty-eight hours, has invaded the deeper layers of the epithelium and the subepithelial connective tissue. This at once makes clear the reason for the inefficacy of the local antiseptics, particularly those like silver nitrate, the action of which is very superficial. Organic silver preparations and irrigations of various kinds are equally powerless to reach any but the most superficially situated of the bacteria.

Since the destruction of the bacteria lying on the surface is not sufficient to control the disease, it may be stated that the problem of the destruction or inhibition of the deep-lying bacteria is the essential problem in curing gonorrheal ophthalmia.

The gonococcus numbers among its biological peculiarities an unusual intolerance of extremes of temperature, its growth in culture being inhibited by temperature above 38° C. or below 18° C. Text-books on bacteriology state that exposure to a temperature of 60° C. for a period of ten minutes destroys the gonococcus. Experimentation in the laboratory of the Dimmer Clinic in Vienna in April and May, 1913, with cultures from forty-two cases of acute gonorrheal urethritis, seemed to indicate that this point may be placed from one and one-half to two degrees lower than this, i. e.,—from 58° C. to 58.5° C.

Thus, theoretically, at least, it would appear that, if the conjunctiva could be subjected to a temperature as near as possible to this without injury to the tissues, a marked effect should be observed in the course of the disease, particularly if the heat can be applied in such a way as to penetrate as deeply into the tissues as does the gonococcus. This theoretical requirement has, in my opinion, been perfectly met practically by the local use of steam as practiced in the Dimmer Clinic since February, 1913, with the apparatus devised by Lauber and modified by the writer. Goldzieher of Vienna was probably the first to employ steam in the treatment of the purulent ophthalmias; and in his first series of cases reported fifteen patients treated with the application of steam passing through a nozzle held at a distance of about four centimeters from the eye, the temperature of the steam striking the tissues being about 45° C. (113° F.). Although the re-

sults indicated that the method was a distinct step in advance there were still a number of important details to be worked out, in order to get the best possible results. First of all, experiment showed that the temperature of the steam at a given distance from the nozzle was not constant, so that an arbitrary distance could not be set. This suggested the advisability of providing the apparatus with a sliding-guard, which could be set at the exact distance from the nozzle where the steam was shown by the thermometer to be at the desired temperature. Secondly, it was determined that the tissues would sustain without injury a considerably higher temperature than that set by Goldzieher, and that the effect upon the diseased process was markedly better when the temperature was raised. Steam at from 50° C. to 53° C. gave the best results; and in one case in which a temperature of 55° C. was inadvertently reached no injury was done the tissues. Further experience naturally suggested other changes in the original technic. In the first place, the lids were held apart by an assistant in the usual manner; but, even with gloves on, the exposure of the fingers to the steam was more or less painful, and gauze wound on little sticks was substituted. The time of exposure was finally set at six minutes; and since the application of the steam could not be borne for longer than from forty-five to sixty seconds without severe pain it usually took twenty minutes or so to complete the six-minute exposure. This was done once every twenty-four hours, and was combined with half-hourly irrigations with potassium-perman-

ganate solution. No other treatment was used. The results attained with this method in 34 cases (7 adults, 2 children and 25 infants) has left nothing to be desired. In no case has there been any corneal complication; swelling and pain subsided with unusual promptness; and the course of the disease was notably shortened, whereas, after the first application of silver nitrate a considerable increase in the number of gonococci in the discharge is often observed. A striking diminution in the number is noted after the initial application of the steam. In 8 of the cases in the series mentioned (all infants), the disease affected both eyes; and in 5 of these cases the experiment was made of treating one eye with steam in the manner described and the other with applications of silver nitrate in the usual manner, using the permanganate irrigations in both. The difference in the results attained was very striking. In every instance the eye in which the steam was used was brought much more quickly under control than the one under nitrate. In cases brought under treatment early the edema of the lids did not become severe; and the course of the disease seemed, in general, to be shortened by about one-third. There were no corneal complications, except in one case in which there was a corneal ulcer present when the man presented himself at the clinic. In no case was by a chronic hypertrophic conjunctivitis. The canthotomy necessary; and no case was followed application of the steam is undeniably painful, but not unbearably so.

## VAGINAL HYSTERECTOMY UNDER SPINAL ANESTHESIA: REPORT ON A CASE

By R. R. CRANMER, M. D.  
MINNEAPOLIS

I wish to report this case of vaginal hysterectomy under spinal anesthesia on a patient whose age and physical condition were not favorable for the use of ether or chloroform. The case belonged to that comparatively small class in which a general anesthetic cannot be used; and it was because of this fact that spinal anesthesia was resorted to. Had it not been necessary for this patient to earn a livelihood by hard labor the operation would not have been done; but, in her case, it was necessary, and the condition of prolapse, therefore, was a source of continual pain and trouble. The fact that the diet was not restricted after the operation assisted

greatly in shortening her stay in bed and her rapid recovery.

Patient, aged 59, married, mother of six children. She had been suffering from prolapsus uteri of a severe degree for five years. The cervix presented at the vaginal orifice at times. Mitral insufficiency and arteriosclerosis were present. She also had chronic bronchitis and a mild nephritis. Chloroform and ether being contra-indicated, spinal anesthesia was used, two drachms of 2 per cent novocaine solution being injected through the fourth lumbar interspace. The vagina was prepared for operation, and the hysterectomy started within four minutes after the spinal injection. The patient did not complain of any pain; and there was no shock or other untoward symptoms. She was immediately put upon a general diet and was able to leave the hospital on the twelfth day.

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## A NEW REMEDY FOR PYORRHEA ALVEOLARIS

Diseased teeth and gums have an undoubted and pernicious effect upon the general health of the individual. This condition as a cause of disease has been the subject of many papers written by physicians and dentists.

Now a new remedy has been proposed by Bass and Johns which promises relief in the majority of cases. Emetin is the drug that destroys the ameba of pyorrhea just as ipecac destroys the ameba of dysentery. The lesion should be attacked persistently until healed and the use of emetin continued to prevent reinfection.

Emetin may be used hypodermically in one-half grain doses for at least three days and as often as is necessary to destroy the ameba.

The presence of the ameba can be determined only by proper microscopic examinations. The healing process may require considerable time, according to the extent and character of the necrosis. Deep pockets require careful cleansing to clear the pus-forming cavities. After this has been accomplished and pus ceases to form Bass and Johns recommend the use of fluid extract of ipecac as a local application to prevent reinfection. Ipecac will actually destroy the ameba if used persistently and is preferable to the many

commercial preparations now in use. The teeth should be brushed in the ordinary way, after which one drop of fluid extract of ipecac should be applied to the wet brush, forcing some of the solution between the teeth and spitting out the excess without further washing of the mouth.

The investigators have found that this simple procedure will keep the mouth free from pyorrhea. It stands to reason, however, that the teeth must be thoroughly cleaned in the usual manner by the dentist, otherwise it will be impossible for the emetin or ipecac to penetrate the deep crusts which are found about old and uncared for mouths. It is remarkable how many people neglect the care of their teeth and it is equally strange that so little constitutional disorder is found in those who neglect an ordinary and simple sanitary toilet requisite. One of the first rules for hospital patients when they come under the supervision of the nurse is the provision of a tooth brush and a suitable mouth wash.

Many patients from the country, a lesser number from the cities, never employ a tooth brush. Some even resent a suggestion of clean teeth. Nature gave them teeth and nature is supposed to keep them in order, but unclean teeth are the rule rather than the exception in hospital practice.

Not infrequently animals need the services of a dentist, but their numbers are few compared to man. When a simple remedy for pyorrhea, like ipecac, promises to clear the teeth of amebas, there is no excuse for neglecting nature's adornment.

## LOWERING THE MILK GRADE

A bill has been introduced in the Minnesota State Legislature for the purpose of lowering the butterfat requirement in milk from three and one-quarter to three per cent. This means a reduction of solids in milk from thirteen to eleven per cent, and it further means that more water will be added to much of the milk sold in Minnesota. A Minneapolis ordinance prescribes the butterfat content to be as high as three and one-half per cent. Minneapolis has enough water in its milk now, and, if this bill goes through, the city may expect to use skim-milk almost exclusively.

It hardly seems credible that any one should desire the quality of milk to be reduced for any purpose whatever unless it is for commercial reasons.

Fortunately, at this writing the bill is held up



for consideration, and it is to be hoped that sufficient pressure will be brought to bear to insure its defeat. Too many cows give poor milk and any effort to standardize and legalize the inferior cow is a reflection on the integrity of milk sellers. Inferentially, there are too many under-fed children and yet if milk is reduced in quality, we must expect less vigor in the growing child.

One wonders why such a bill should get into the Legislature: what are the real reasons for its passage?

### "LEAVES OF HEALING!"

The late issue of "Leaves of Healing," published by the Dowieites at Zion City, near Chicago, has been sent broadcast among physicians. This sheet is an antivaccination propaganda, and is profusely illustrated by horrible pictures of supposed diseased states caused by vaccination. The text is, as is all others of its ilk, full of misinformation, garbled extracts from known and unknown writers and speakers, and tirades against all who believe in vaccination.

If these sheets would present a fair and broad view of the evils of vaccination they might find more adherents to antivaccination doctrines among medical men; but, as it contains so many misstatements and is so overbearing one-sided in its efforts, the effect is nil, except when it is circulated among those unbalanced in mind and judgment. Physicians in general freely acknowledge that vaccination, or the introduction of a serum, may produce, in some people, unexpected and sometimes disastrous results. Most physicians hesitate to vaccinate people with active syphilis, or even those in whom the syphilis has been seemingly inactive for years, or those who have hereditary syphilis. These persons are quite apt to have an accentuation of their old blood disorder under slight infections or injuries; but that should not militate against vaccination when an epidemic is probable. Some of the pictures in "Leaves of Healing" were undoubtedly pictures of syphilis, and should have been so labeled; but that could not have been expected in a partisan publication.

Physicians also know that people who have chronic eczema should not be vaccinated until the eczema clears up; and doubtless in hurried or extensive vaccinations that are deemed necessary to prevent the spread of smallpox in a community cases of eczema are overlooked. Children who are the victims of chronic digestive

disorders, or who react to mild febrile or diarrheal conditions more than the average child, are commonly exempted from vaccination. On the whole, there are but few conditions that are made worse by careful vaccinations with proper dressings and after-care.

When one considers what wonders in the way of control of smallpox have been recorded in medical history, the few mishaps that occur among the vaccinated, the proportion of illness due to vaccination is so infinitesimal that they cannot be classed among the "fearful" results of vaccination.

"Leaves of Healing" leaves out of its vaporings the fact that Zion City had a smallpox epidemic not long ago, and was quarantined by the health authorities, and that the people submitted to vaccination with gratifying results. Nor does the above-mentioned magazine record the fact that the president and secretary of a local branch of antivaccinationists in Minneapolis, who were fighting a compulsory vaccination law before the Minnesota Legislature a few years ago, died of virulent smallpox during that meeting of the Legislature.

The antivaccinationist usually has at his command a set form of speech that contains more vituperant adjectives, and less reason and judgment, than the average self-constituted reformer. Smallpox and other preventable diseases will continue to exist while the uneducated and ill-balanced minds are permitted their volley of wind-laden speech. Some day the people will wake up, cast the "reformer" aside, and climb on to the band-wagon of health and happiness.

It will take our educators and sanitarians some time to harness the team to the wagon, but when it starts it will go on merrily to its destination.

### OWNERSHIP OF THE JOURNAL-LANCET

In answer to a number of inquiries the following statement is made:

The stock of the JOURNAL-LANCET is held by a number of Twin City physicians, and the publisher, Mr. W. L. Klein.

The JOURNAL-LANCET is the official organ of the State Medical Associations of Minnesota, North Dakota, and South Dakota. The responsibility for its reading matter and editorials rests with the publication committees of the state associations.

## MISCELLANY

### TO THE PHYSICIANS OF THE STATE OF MINNESOTA:

The Committee on Public Policy and Legislation most earnestly asks the co-operation of every physician in the State of Minnesota in procuring the passage of the several bills that have been decided upon, and either have been or will be introduced into the legislature during this session. It is believed that there is not a man upon the roster of the State Medical Society, or indeed any physician in Minnesota, who does not see the necessity of certain legislation for the protection of the physicians in the State, and also that the common weal will be advanced by the passage of the telephone bill introduced by Senator Andrews, of Blue Earth, and by the passage of the bill relative to trachoma, which is a constant menace to the public health, and several other bills that are in course of preparation, but which await certain developments before their presentation. The committee earnestly begs of all the physicians in the State that they will write to their representatives and senators from time to time urging with great earnestness their support for the several measures advanced by the Committee on Public Policy and Legislation. It is believed that every physician can influence at least from 10 to 100 votes at a general election, and this fact, of itself, makes the physician a factor in the election of any candidate. It is believed by this committee that the medical men of the State, if they will but unite and act in concert, can measurably influence legislation. The time has come for the physician to take his place in the political system of the State, both as an active agent and, indirectly, through his influence of others.

The telephone bill provides for physical connection between all telephone companies in the State without extra charge, except a small toll. It provides that telephone companies shall be placed under the direction of the Railroad and Warehouse Commission. It provides that no greater net income than 5 per cent shall be allowed upon the capital actually used in the operation of the telephone companies. It provides for intercity telephone service in the cities whose city limits adjoin without extra charge.

The trachoma bill provides for the segregation of trachomats, and, under certain circumstances,

for the maintenance by the State of special schools for their education in school districts having as many as 20 trachomats.

There is also drafted and ready for introduction a bill requiring all persons who seek to practice medicine in any form whatever to pass the regular examination before the State Board of Medical Examiners.

There is in contemplation a bill for the purpose of procuring certain lands for the building of cottages thereupon and establishing farms to be worked by lepers who may be or shall have been committed to the leprosarium farm, the intention being that those lepers in the State that are able to work shall have an opportunity to do so, and that the said lepers should care for lepers who are unable to work or earn a living. It is also proposed to purchase a small tract of land not far from the State University for the purpose of allowing an exhaustive study of certain forms of leprosy with the aid of the State University Medical Staff. The leprosarium farm would be under the direction of the State Agricultural School.

The Chairman of this Committee will be very glad to receive advice and suggestions from the physicians in the State.

CORNELIUS WILLIAMS, M. D.,

Chairman of the  
Committee on Public Policy and Legislation.  
St. Paul, Minn., February 3, 1915.

## REPORTS OF SOCIETIES

### MINNESOTA ACADEMY OF MEDICINE

The Academy met at the St. Paul University Club, Feb. 3. Dr. C. M. Carlaw presided.

Four doctors were proposed for membership: Drs. W. H. Condit and Stephen Baxter, of Minneapolis, and Drs. Wilhelm Lerche and F. C. Schuldt, of St. Paul. All four names were referred to the executive committee.

Dr. Arnold Schwyzer showed some x-ray pictures of a penetrating gastric ulcer. He also made a report of a case where gall-stones gave a feeling of emphysematous crackling, due to small marble-sized stones with no more fluid than enough to fill the spaces between the stones (perhaps a teaspoonful in all).

The paper of the evening was presented by Dr. A. E. Benjamin, the subject being "Goiter Operations with Simplified Technic." The pa-

per was thoroughly discussed, the whole evening being given over to its consideration.

The reading of Dr. White's thesis was deferred until another meeting.

Twenty-seven were present.

FRED E. LEAVITT, M. D., Secretary.

## CORRESPONDENCE

TO THE EDITOR:

In the February 15th issue of THE JOURNAL-LANCET is a discussion by Dr. Klaveness, of Sioux Falls, S. D., on a paper on "Syphilis and Its Relation to Society" by Dr. McLaughlin, of Sioux City, Iowa. In this discussion Dr. Klaveness states: "We are unfortunate here in South Dakota in this respect, that we do not have the population and the laboratory facilities for resorting to the Wassermann reaction at all times, and any man within the State who would systematically carry out a Wassermann reaction now and then would invalidate his findings very materially, inasmuch as it is very well established that, in order to obtain reliable readings, you must have a serologist or bacteriologist to follow this work exclusively in order to get accurate findings. It is immensely important, and it would be a boon to the suffering people, if we could have a state serologist."

This statement by Dr. Klaveness is contrary to the facts as they now exist and did exist at the time he discussed the paper at Watertown, S. D., in May, 1914.

We have a well equipped medical laboratory in South Dakota in connection with the medical department at the State University at Vermillion, and we have been doing the Wassermann test.

This misstatement should have been corrected at the time it was made, but was not, as I was in Watertown but part of one day during the State Meeting last May and did not hear the paper or its discussion.

Permit me to state through your columns that we do the Wassermann test at the State Health Laboratory and have been doing it on Thursday of each week since March 21, 1914. At that time a circular letter announcing the fact was sent to every physician in the State, including Dr. Klaveness. This announcement was made only after several months of experimental work in perfecting the technic and controlling all factors.

We do the original Wassermann test, using

the Nogouchi antigen. All our reagents are prepared in our laboratory and every possible control is carried out each time the test is set up. We therefore believe that our results will compare favorably with the best scientific work of this character.

At the present time a fee of \$5.00 for each test is charged, containers and instructions are supplied upon request.

We have done the Wassermann test for the State Hospital for the Insane at Yankton from the first.

MORTIMER HERZBERG, M. D., Director.

Vermillion, S. D., February 18, 1915.

## THE LOYALTY OF NURSES

TO THE EDITOR:

My attention has just been called to an article published in THE JOURNAL-LANCET, August 1, 1914, it being an address by Dr. George D. Head to the graduating class of the Asbury Hospital. The advice Dr. Head gives to the nurses seems very good, and very elevating to our profession, but I would like to analyze it to show that it is not quite practical.

It has taken considerable effort on the part of nurses to convince the people, and to convince some doctors, that they are any more than machines. Because we ask for three hours rest out of the twenty-four, and because we asked for a fixed rate for service, Dr. Head says that our loyalty to high ideals is diminishing. Unfortunately, in the nursing profession, as in all other professions, there are some who are incapable and unconscientious; and, if Dr. Head had the experience of having a nurse leave a patient, unattended, at a critical time, she probably was one of the few incapables, or was so overtired from loss of sleep that it was necessary for her to have rest. When Dr. Head says that a nurse should waive her rest hours for days or a week at a time, if necessary, I think he is making a mistake. A nurse cannot do her duty by a patient if she does not have proper rest. It is unfair to both the patient and the nurse. Dr. Head may say that most patients are not in need of constant attention for more than a few days or a week, and that a nurse can stand it for that length of time without rest hours. This is true; but we have to consider that the next case may be just as critical, and so the nurse must reserve some strength for the cases to follow. And more often than not, the nurse is obliged to take cases with very little or no rest between them.



In the second place, Dr. Head thinks that the nurses ought to have a varying scale of charges for service. The doctors do it; why shouldn't the nurses? Dr. Head does not seem to consider the fact that the nurse has one patient, while the doctor has many. Suppose a nurse takes care of a poor patient for five or ten dollars a week, where is the rich patient who is willing to pay forty or fifty dollars a week to make up the loss? The nurses have found that twenty-five dollars a week is the price that is necessary for them to live on in order to keep themselves clothed, pay for their laundry (no small item), and carry them over the few weeks of rest or over the dull season. The average life of a nurse, as a nurse, is, I believe, not more than ten years. In that length of time, at the wages she gets, she is not able to lay away a great amount for a rainy day, which usually comes all too soon.

We have a number of good hospitals in Minneapolis where people in moderate circumstances can be very comfortably cared for at a considerably less expense than employing a nurse in their homes. The poor in our city, I think, are fairly well taken care of in the city hospitals and by the visiting nurses, who are paid for such work.

As for nurses refusing cases because they are afraid of them: I think there is usually some just cause. If a nurse has a tendency towards tuberculosis, she should refuse such cases; or if she has a tendency towards throat troubles, she should refuse diphtheria and scarlet-fever cases. A nurse who is constantly with a patient runs considerably more risk of infection than the physician, whose visits are usually short. There are nurses who make a specialty of such cases, and usually there is no trouble finding such a nurse. Nurses who make a specialty of obstetrical cases or of children should not take contagious work. As for a nurse refusing a typhoid case because she is afraid of it: I cannot believe that any real nurse would do such a thing.

It also seems to me very ridiculous, and it surely cannot be a common thing for a nurse to inquire before she consents to take a case whether or not the plumbing is modern and how many servants are kept.

As to just what Dr. Head means by saying that a nurse should be willing to do any kind of service about a house, I do not know; but I do know that nurses are not usually physically fit for washing or scrubbing, yet, as a rule, nurses are glad to perform duties which are not just in

their line, in order to help the household to run smoothly.

Most of the nurses in general work are engaged in nursing because they are obliged to earn their living, and in most cases because they are especially interested in this particular field; and, although most nurses take some charity cases, it is impossible for them to take many, even to satisfy what Dr. Head calls "the inner, higher longings of the soul."

HARRIET M. PRIME, R. N.

Minneapolis, February 4, 1915.

## BOOK NOTICES

**MANUAL OF OBSTETRICS.** By Edward P. Davis, A. M., M. D., Professor of Obstetrics in the Jefferson Medical College, Philadelphia. 12mo of 463 pages, 171 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$2.25 net.

As indicated by the name this is a handy book. It is well illustrated, the text is brief and well written, and as complete as could be expected in a work of its size.

It presents no features which are especially new, though it takes up many of the most recent advances in obstetrics.

It is a work that aims to give those who wish it a concise account of the status of obstetrics at the present time.

—ADAIR.

**BALNEO-GYMNASTIC TREATMENT OF CHRONIC DISEASES OF THE HEART.** By Prof. Dr. Theodor Schott, Bad-Nauheim. Published by Blakiston, Philadelphia. Price, \$2.50.

This brochure sets forth in the main, preceded by a short chapter on medical treatment, the philosophy, technic, and clinical results of balneogymnastic therapy in chronic heart-conditions.

It would appear, inasmuch as Prof. Schott admits the non-establishment of the probable curative factors of either the carbon dioxide or mineral constituents, that possibly, as Dr. Anders in the foreword surmises, the curative properties may reside in the "advantage of being far removed from the cares and responsibilities growing out of the practical affairs of life at home."

Relative to the more firmly established value of the gymnastic element, it is quite evident that the "resistance movements," are an improvement over the Zander mechanico-gymnastic, and of similar value to the so-called "Terrain Kur," with the added advantage of personal application.

—SCHNEIDER.

**DISEASES OF BONES AND JOINTS.** By Leonard W. Ely, M. D., 220 pages, 94 illustrations. Surgery Publishing Co., N. Y. Price, cloth, \$2.00.

Few men are better fitted than Dr. Ely to write an authoritative book on joint and bone diseases. He has gone at his study from the only logical end; that is, the study of the underlying pathology. The book

throughout shows the result of much conscientious work in the pathological and x-ray laboratories, carefully checked up from the clinical aspect.

The average specialist who writes a manual for the use of the general practitioner seems to think he must mention every theory which has ever been brought out since the time of Hippocrates, together with a list of every form of treatment ever proposed. The bewildered family doctor gets about as much help as he would from the perusal of a few pages of the *Index Medicus*. One good theory, clearly stated, even if it is not universally accepted, may form a practical working basis which will be of great aid to the doctor in the understanding and care of his cases. In this particular Dr. Ely is most satisfactory. He has worked out the pathology of the tubercular and other chronic joint diseases in a clear and logical manner. While much may have to be altered in the light of further research, at least one can feel sure that Dr. Ely has convictions, and that his work will form a useful basis for further investigations.

The illustrations are taken almost entirely from photographs or photomicrographs and are mostly original. So many works on Orthopedic Surgery appear which are filled with cuts handed down from one text-book to another, cuts of impossible people wearing impossible appliances, that it is hard to imagine that such a book, illustrated with such quaint old prints, can represent the latest word or offer anything new.

Dr. Ely's discussion of the pathology of joint tuberculosis is perhaps the most interesting thing in the book. His idea of the red bone marrow and the synovia being the sole tissues to be primarily involved does not agree with the recent work of Fraser, of Edinburgh. Evidently more work must be done in order to harmonize these findings.

In general, while not much space is given to treatment, what there is, is clear and is carefully selected by the author, instead of leaving this important point to the discretion of the reader.

His discussion of the chronic arthritides is quite full and very instructive. He points out particularly the resemblance between the pathological conditions found in various chronic infectious joints and in the various stages of joint tuberculosis.

This little book will certainly be of use to anyone who has to treat bone and joint diseases.

—REED.

## NEWS ITEMS

Dr. Chas. Pierce, of Wadena, has moved to Menahga.

Dr. J. L. Stewart, of Spearfish, S. D., has located at Custer, S. D.

Dr. Jas. Farrage, formerly of Deering, N. D., has located at Park Rapids.

Dr. Hugo Neukamp is leaving Fessenden, N. D., to locate in Beulah, N. D.

The Dell Rapids Hospital was completed and opened the latter part of February.

Dr. H. A. Gueffroy, of Chicago, has taken over the practice of Dr. D. F. Sullivan, of Frankfort, S. D.

The new St. Alexius hospital, at Bismarck, N. D., was formally opened to the public February 15th.

The entire surplus of the old Homeopathic Hospital Association, amounting to \$1,000, was voted to the support of the Maternity hospital, of Minneapolis, at a recent meeting.

The Physicians' Hospital company has been incorporated at Thief River Falls for the purpose of building and maintaining a hospital at that place. The company is capitalized at \$25,000.

In a previous issue we stated that Dr. G. P. Shepard, of Chicago, had located at Jamestown, N. D. Dr. Shepard is from Courtenay, N. D., and not from Chicago, though he has been taking postgraduate work in that city for the past few weeks.

The Medical Society of the State of New York invites all physicians of the country to its hundred and ninth annual meeting which is to be held in Buffalo, April 27-29. This will probably be the largest medical meeting of the year, except perhaps that of the A. M. A. in San Francisco.

Messrs. J. D. Edgar, Arnold Hamel, R. A. Johnson, and H. A. Rudd, and Miss Olga Hansen, all of the class of 1915, have been elected to the Minnesota chapter of Alpha Omega Alpha, the national honorary fraternity in medicine, the membership of which is based solely upon scholarship.

Dr. James E. Moore, who has practised in Minneapolis for thirty-two years, twenty-eight of which have been devoted to the exclusive practice of surgery, has given up his practice and will, hereafter, give his entire time to the Medical School of the University of Minnesota, except for a limited amount of consultation work.

In our last issue we made the statement that the Ramsey County Medical Society would not admit a physician to membership until he had been a resident of the county for one year. This should have been written so as to convey the meaning that a physician must have been a resident of some county for at least a year, not necessarily Ramsey County.

It is the desire of the publishers of the *Journal-Lancet* to make this department of news as interesting to its readers as possible. The items are obtained from a number of sources, and, though

a great deal of care is given to their preparation, mistakes will necessarily occur. Will you not help to keep up the interest of this column by sending in anything which may be of interest to the readers? Notify us of mistakes as they occur that we may make a correction in the next issue.

"The Mayo Foundation for Medical Education and Research, Incorporated," with an initial endowment fund of \$1,500,000, has recently been incorporated. It has for its object the endowment of the graduate medical instruction and research work which has for years been a feature of the Mayo Clinic, at Rochester. The founders are: William J. Mayo, Charles H. Mayo, Henry S. Plummer, Edward Starr Judd and Donald C. Balfour. The board of temporary trustees having in charge for the present the investment of the fund is composed of Bert W. Eaton, George W. Granger and Harry J. Harwick. The board of scientific directors is composed of Louis B. Wilson, William F. Braasch, E. Hessel Beckman, A. H. Sanford, and Walter D. Sheldon. For the present the expenses of the foundation will be met by annual contributions from the Mayo Clinic, the income from the endowment being allowed to accumulate and increase the principal.

#### PHYSICIAN WANTED

To locate in a thriving North Dakota town. For full information correspond with Andrew Erickson, Makote, N. D.

#### OFFICE FURNITURE FOR SALE

A good roll-top desk and other office furniture is offered for sale at a reasonable price. 616 Syndicate Bldg., Minneapolis.

#### PRACTICE FOR SALE

An established practice in a town of 2,000 for sale for the price of the office outfit. If you mean business, write at once. Address 205, care of this office.

#### SANITARIUM FOR SALE

A new, strictly modern, 50-bed sanitarium with three acres of land on a beautiful lake, located near the Twin Cities, for sale cheap. Address 206, care of this office.

#### WANTED

An eye, ear, nose, and throat man who is willing to work. Must be sober, competent man. State the salary expected, and give credentials in the first letter. Address the C. A. Hoffman Co., 814 Nicollet Ave., Minneapolis, Minn.

#### PRACTICE WANTED

In Minnesota or South Dakota town, with some future and where English is spoken. This is wanted by physician who has had several years' experience in practice, and has done laboratory and hospital work. Address 198, care of this office.

#### WANTED

A physician and surgeon to locate at Judson, North Dakota. No doctor located within seven miles on the west and twenty-three miles or more in other directions. One who could start small drug-store in connection with his practice preferred. Address First State Bank, Judson, N. D.

#### WANTED TO EXCHANGE

Contract mining practice, on Iron Range, with modern hospital, complete equipment, autos, good roads, drive all the year, best contracts, \$600 to \$800 cash each month; future very bright. Owner wishes to correspond with an A 1 physician and surgeon with a good stand in or very near the Twin Cities, with the view of effecting an exchange for part of the year. Address, 204, care of this office.

#### FOR SALE

To a man with surgical ability, one-half interest in my private practice and well-equipped hospital, located in a live up-to-date county-seat town in Minnesota; population 2,500; two railroads; good schools and roads; good fees. This is an excellent opportunity to get into a place with a good future. Price, \$5,000 for one-half interest in hospital building, equipment, office fixtures, and practice; \$2,500 cash. Don't write unless you mean business and have the cash. Address 202 care of this office.

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-eighth annual session opens September 28, 1914, and closes June 5, 1915. New Orleans Polyclinic, P. O. Drawer 261, Post-graduate Medical Dept., Tulane University of Louisiana.





# The Battle Creek Method in Diabetes

Diabetes, though not always curable, is controllable. Practically all diabetics can be made sugar-free and the acidosis disappears with the sugar. By a special regimen the reappearance of the sugar and the acidosis may be prevented.

The Battle Creek method is based upon experience gained in the treatment of many hundreds of cases supplemented by the observations and discoveries of Von Noorden, Falta, Guelpa, Benedict, Allen, and numerous other investigators. The essential features of the method are—

1. A thorough preliminary examination and repeated examinations comprising (a) complete quantitative examination of the urine daily, (b) differential study of the blood, (c) chemical, microscopic and bacteriological examination of the feces and study of the pancreatic function, (d) X-ray examination of the stomach and intestine with special reference to stasis.
2. Study of the patient's metabolism by the respiration apparatus to determine his respiratory quotient,  $\text{CO}_2$  tension and basal ratio.
3. Establishment, by the aid of metabolism studies of each case, of a regimen adapted to the individual by determining the proper proportion of protein, fats and carbohydrates to keep the urine free from sugar. The *kind* of protein, fat and carbohydrate is considered important, as well as the *amount*.
4. The patient's metabolism is regulated by baths, voluntary and automatic exercise, photo- and thermotherapy and other physiologic means.
5. The results of the regimen and treatment are accurately controlled by a "Metabolism Graphic" which shows the daily variations in the amount of urine, amount of sugar, acidosis, coefficient of sugar utilization, coefficient of carbohydrate utilization, nitrogen balance, glucose nitrogen ratio, weight balance and energy balance. These factors are all worked out by expert chemists and dietitians and with this data before him, and a great variety of special foods of known energy value suited to diabetics at ready command, and the assistance of a strong corps of specially trained dietitians, the physician is able easily to arrange a dietary adapted to each case and to note each patient's progress with the most careful scrutiny.

Under this comprehensive management the sugar usually disappears from the urine in two or three days, and does not return so long as the prescribed regimen is followed.

A few weeks' treatment usually suffices to train the patient to a suitable dietary which he may safely follow under the guidance of his home physician.

We will be glad to send full information concerning the Battle Creek Method in Diabetes to any physician who will mail to us the attached coupon.

**The Battle Creek Sanitarium, Battle Creek, Mich.**

Box 350

The  
**SANITARIUM,**  
Battle Creek,  
Michigan

Please send to the undersigned full information concerning the Battle Creek method of treating diabetes.

Dr. ....

Street .....

City .....

State.....

## PUBLISHER'S DEPARTMENT

### QUAKER OATS

Doctors all over the country are advising the use of oat foods for the old as well as the very young child. It is for young folks developing, for grown-ups, who are hard workers, and for the old folks who wish to keep young. You can safely use Quaker Oats. It costs no extra price, and when you use it you are certainly getting the very best in oat foods. Physicians should read their page announcement in this paper.

### ELECTRO-THERAPY

The Scheidel-Western X-Ray Coil Co. announce on another page that they have the latest appliance in electro-therapeutics, namely, the Columbia Treatment Transformer No. 9.

The apparatus is illustrated and described on another page, and more fully in the Company's new catalog.

As the Company is the largest manufacturer of x-ray apparatus in the world, their catalog should be in the hands of every man using this line of treatment.

### BOREMETIME—A NEW EMETINE PREPARATION FOR PYORRHEA

Every doctor and dentist in the United States should know about this new preparation for the local treatment of pyorrhea alveolaris. Boremetime is a 1-2 per cent solution of emetine hydrochloride, together with boric acid, zinc sulphocarbolate, and aromatics.

The emetine is amebicidal, the boric acid bactericidal, and the zinc sulphocarbolate astringent. These three drugs meet the three essential factors necessary for the successful treatment of pyorrhea. Boremetime should be used in every case, either alone, or (in some severe cases) in association with the subcutaneous injection of Emetine Hydrochloride (Abbott).

A special free booklet on "Pyorrhea Alveolaris: How to treat it successfully with Emetine" will be sent on request. Send for it today. The Abbott Alkaloidal Company, Chicago.

### OCONOMOWOC HEALTH RESORT

The State of Wisconsin has an enviable reputation for not a few things in which it excels all the other western or middle-western states. One of these is its sanatoriums, or health resorts. The climate, the beautiful scenery, the pure water, the proximity to the large cities of Milwaukee and Chicago, and the high-grade medical specialists made it possible to found such institutions in southern Wisconsin long before other parts of the middle west had the population or transportation facilities to make success in this line either probable or possible.

The Oconomowoc Health Resort is one of the best equipped and best managed of these institutions. It accepts only nervous and mild mental cases. It is under the management of Dr. Arthur W. Rogers as resident physician. Dr. Rogers has both the professional equipment and the personality that are necessary in the treatment and care of persons suffering from nervous and mental disorders.

### BATTLE CREEK SANITARIUM

Fifty years ago examination was largely a matter of pulse finding; now it is possible to weigh and measure the organic functions of the body with as much accuracy as is possible in the testing of an intricate mechanism. This becomes possible through a series of tests in many of which elaborate equipment is required. Perhaps no other institution has a more complete organization for diagnosis than the Battle Creek Sanitarium.

The physical inventory possible there is a very thorough and accurate stock taking of the vital functions. Many business and professional men visit the sanitarium each year in order to take full advantage of the diagnostic facilities.

An interesting booklet, "The Measure of a Man," is offered free by the sanitarium to those who care to know more regarding the system of examination.

### ARMOUR & COMPANY

Why Pituitary Liquid should be specified:

It is a pure preparation.

It is free from objectionable chemicals.

It is made from absolutely fresh raw glands. It does not require preservatives.

It is standardized physiologically.

It is sold in dated packages, permitting the physician to discard old goods.

Pituitary Liquid is required in such particular classes of cases that the practitioner can afford to use the best only.

The use of Pituitary Liquid obviates the necessity of forceps in a great many cases.

Pituitary Liquid is of great service in parturition uterine inertia—peristaltic paralysis.

We shall be pleased to send you a sample of Pituitary Liquid with literature.

Note the name of the perfect pituitary preparation—*Pituitary Liquid (Armour)*.

### THE DELICATE SCHOOL GIRL

Even the most robust and generally healthy children show the deleterious results of the modern system of educational "forcing" that prevails in most of our larger cities. The child that starts the school year in excellent physical condition, after the freedom and fresh air of the summer vacation, in many instances, becomes nervous, fidgety, and more or less anemic, as the term progresses, as the combined result of mental strain and physical confinement in overheated, poorly ventilated school-rooms. How much more likely is such a result in the case of the delicate, high-strung, sensitively organized, adolescent girl? It is certainly a great mistake to allow such a girl to continue under high mental pressure, at the expense of her physical health and well-being, and every available means should be resorted to to conserve the vitality and prevent a nervous breakdown. Regularity of meals, plenty of sleep, out-of-door exercise without fatigue, open windows at night and plenty of nutritious food, should all be supplied. Just as soon as an anemic pallor is noticeable, it is a good plan to order Pepto-Mangan (Gude) for a week or two, or as long as necessary to bring about an improvement in the blood state, and a restoration of color to the skin and visible mucous membranes. This efficient hematinic is especially serviceable in such cases, because it does not in the least interfere with the digestion nor induce a constipated habit.

# THE JOURNAL- LANCET

The Journal of the Minnesota State Medical Association  
and Official Organ of the  
North Dakota and South Dakota State Medical Associations

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MINNEAPOLIS, MARCH 15, 1915

No. 6

## THE MEDICAL SCHOOL OF THE UNIVERSITY OF MINNESOTA AND THE MAYO FOUNDATION FOR THE PROMOTION OF MEDICAL EDUCATION AND RESEARCH\*

### FOREWORD

The medical profession of the State and the alumni of the medical school everywhere will be interested to know, from authoritative sources, the nature and the terms of the proposals which have been framed and submitted to the Board of Regents for affiliation of the Mayo Foundation with the Medical School of the University of Minnesota.

The profession at large should be interested in an event big with possibilities for the future of medical education in this State.

Not alone the theories, but the conditions of medical education in Minnesota, bearing upon this question should be understood. The advantages of affiliation should be appraised. The objections to it should be carefully weighed and its net values determined.

With these objects in view, this statement is offered. Carefully reviewed by representatives of both parties to the proposed arrangement, it issues with authority.

It presents (a) the plan of relations during the proposed experimental period of affiliation; (b) the main outlines of the ultimate plan to which temporary affiliation, if successful, may lead.

### MEDICAL EDUCATION IN MINNESOTA

In the unification of medical education Minnesota has accomplished much. In its control by the State University, the standards of prepara-

tion for the practice of medicine are assured. By its ready adoption of educational advances, through a quarter of a century of progress; by the generous equipment of its scientific laboratories; by the attainment of a teaching hospital providing, in part, for its major clinics; by the upbuilding of a large and efficient outpatient service, the University Medical School has placed itself in the forefront of teaching institutions.

The acquirement of rank, like the inheritance of privilege, imposes the principle of *noblesse oblige*. The State is committed to the nearest and the speediest approach it may make to the highest ideals of medical education. It has accepted the obligation of medical research in the service of the people.

In all State institutions, development is contingent upon adequate appropriation. In a young commonwealth, of rapid growth and diversified interests, the demand for the means of support is imperative in every field of education. The medical school has received its share, but that share has been inadequate to the supply of its multiplying needs. It has called to its aid the public hospitals of the Twin Cities and with helpful response. Yet with a taste of the teaching values of hospital beds all its own, it finds the quasi-control of other service unsatisfactory. It now requires an additional pavilion of one hundred and fifty beds, a home for the School for Nurses and suitable quarters for its outpatient dispensary. Finally, it needs room, on the new campus, to house the one badly dislocated branch of its service,—the department of pathology, bacteriology and public health. Doubtless it will

\* A statement presented by the Committee of the Medical School upon the Relations of the School with the Mayo Foundation.



have to accept the fulfillment of these needs by piecemeal and with as much grace of patience as its faculty can muster. It does not possess today the full requirements of effective undergraduate training, to say nothing of the needs of graduate teaching. Its perennial cry is: "More beds!"

At the present moment, a new problem,—a new opportunity of service awaits it.

#### THE PROBLEM OF GRADUATE MEDICAL TEACHING

The need in America of the Graduate School in Medicine is apparent. It is a need not yet formulated as to type; a need which finds individual expression and must be individually met. Methods of meeting it are engaging the minds of medical educators both east and west.

The practical closure of the field of graduate study abroad has accentuated the desire for domestic opportunity; has stimulated teachers and instructors to provide it. Men of medicine in America have long felt that the pilgrimage of medical graduates to European clinics is, in large degree, a tradition. They have long held that the mechanism and material of research may be found within our own medical doors. The clinical Mecca across seas has always been sought by many men of merit, and by more men of means. Too often the fruitful student has been barred of his full fruition by stay-at-home demands for his daily bread. With a modicum of relief from financial pressure, with a nearby chance of study, he is ready to grasp eagerly the offer of graduate teaching.

The tendency to specialism in medicine creates the objective of the great majority who go to the clinics of Europe; but for one who seeks his goal through patient years of preparation in the schools, the many among specialists break into full bloom during a summer's junket to the Old World. To medical educators of today, this forcing method no longer appeals. The argument of fitness is gaining in the moral sense of men, and in the fit training of specialists University schools recognize one of the great needs of the hour and, therefore, one of the chief ends of graduate medical teaching.

Willing students wait the opportunity; but other things, also, are needed for the development of the Graduate School in Medicine. The task calls for men; for men of large vision as graduate teachers, for men who can evolve method and material other than that which serves the purposes of undergraduate instruction; men, who, foregoing the ways and works of the polyclinic,—the historic vaudeville of so-called grad-

uate study,—can lead the graduate student up to larger conceptions of advanced scientific medicine; men who can cultivate in others the desire to lay broad and deep the foundations of really specialized function in the practice of the profession, who can inspire in their fellows the passion for research and the habit of following in the footsteps of scientific truth, wherever they may lead.

There is needed, too, a wealth alike of clinical and laboratory material,—a wealth which the ordinary medical school, even of University parentage, does not possess; which, often, indeed, it does not enjoy to the full measure of its undergraduate demands. Graduate teaching in experimental medicine or surgery, or in the specialties of practice, must be built upon a broad basis of laboratory study in each relational field, while its special clinical problems must be made continually the subject of laboratory investigation. Large must be the mass of available material from which the adequate selection of norms and of aberrants, for the uses of the specialist in study, may be drawn.

The appreciation of these great essentials of graduate medical teaching has made the approach of teachers to its problems very slow. It should no longer bar them where means and men and material are to be found.

#### THE GRADUATE SCHOOL IN MEDICINE OF THE UNIVERSITY OF MINNESOTA

With the authority of the Board of Regents, the Administrative Board of the Medical School has launched, within the past year, the Graduate School in Medicine. Realizing that the definition of graduate work must be clear, that a distinct line of demarcation must be drawn between it and the practitioners' courses of the past, that the conditions under which it is offered must accord with academic traditions, the school has established itself as a branch of the Graduate School proper of the University of Minnesota. It is under the joint direction of the Dean of the Graduate School, the Dean of the Medical School, and a committee of the medical faculty on graduate teaching.

It offers a number of distinct opportunities, viz.:

(a) The pursuit of special research problems, under chosen supervision, for unstated periods of time.

(b) Courses of graduate study in the general field of medicine, from which selection of major and minor subjects is made. These courses,

under direction of the committee, include relational studies along clinical lines and foundational studies in laboratory branches. They involve the preparation of a thesis. They are arranged in time periods of two and three years. They lead, finally, to the degrees of Master of Science and Doctor of Science, respectively.

(c) Teaching fellowships, awarded to the selected graduate in medicine, who desires to train himself in a given specialty. These fellowships, in limited number, are offered in Surgery, Internal Medicine, Obstetrics, Pediatrics, Eye, Ear, Nose and Throat Diseases, and Nervous Diseases. They cover a period of three years of study and carry stipends of \$500, \$750, and \$1,000 for student support in the three successive years. Fellows devote themselves exclusively to their chosen courses for eleven months per annum. They give one-fourth of their time to teaching assistance, within their specialty. One-fourth of the entire period is devoted to related laboratory studies. Major and minor subjects are chosen and a thesis, upon some approved problem within the scope of the major, is required. These courses lead to the degree of Doctor of Science, qualified by the special subject pursued.

(d) Graduate scholarships, awarded for periods of two or three years, to the selected graduate in medicine, who wishes, similarly, to prepare for the practice of a given specialty. These scholarships do not carry any stipend, but are exempted from payment of tuition fees. They require the devotion of only a minor measure of time to assistant teaching and cover only nine months in each year. The requirements of these scholarships are otherwise identical with those governing the teaching fellowships, excepting that two years of successful study may lead to the degree of Master of Science, while the three year period leads to the Doctorate in Science.

Six teaching fellowships and five graduate scholarships have been provided for the present year. Several of these are already filled and the number of applicants has been surprisingly great. These positions will be increased as means of support can be found.

The opportunity of graduate teaching appears to be limited only by the capacity of clinics and laboratories to provide suitably for the needs of students. Every effective means of increasing this capacity is to be sought. Experience has proved the unfitness of public hospitals for pur-

poses of graduate study. The graduate's work must be done where clinical and laboratory facilities are definitely controlled and freely granted.

#### THE MAYO FOUNDATION FOR THE PROMOTION OF MEDICAL EDUCATION AND RESEARCH

The large volume of clinical and laboratory material gathered in the Mayo Clinic at Rochester, Minnesota, suggested to its staff, some ten years ago, the idea of placing it within reach of graduate students in medicine. Large success in any professional calling always awakens in men the instinct of professional parentage. It has awakened to a new and a notable departure in this professional group.

For a time, the opportunity of graduate study was informally extended to a few men who desired to remain in residence at Rochester for that purpose. Some five years ago, nine graduate fellowships were created by the clinic, under annual and progressively increasing support stipends for each of a succession of three years. As the laboratory and clinical facilities for research have grown, this number of fellowships has been steadily increased until, at the present time, thirty-six graduate students have been appointed and are actively pursuing their studies. Already ninety-five men owe a graduate allegiance, as untitled alumni, to the Mayo Clinic.

Its staff has long recognized the desirability of placing this graduate work, with the large educational and scientific resources at its command, under University control; and very recently, important steps have been taken to organize these opportunities and to effect this relationship. To secure the most nearly ideal conditions for its fulfillment, it has seemed desirable to create a permanent mechanism which, while utilizing the educational and scientific values the clinic affords, can be held distinct from the Mayo Clinic as a professional enterprise.

At the suggestion, indeed, of representatives of the University, the Mayo Foundation for the Promotion of Medical Education and Research has been created and incorporated. An endowment fund has been provided by its founders. This fund now amounts to over \$1,500,000 and is to be further increased in principal and by accumulating interest from year to year. It has been placed, temporarily, in the hands of an independent board of trustees. It should be noted that this endowment fund is already removed from the hands of the Founders and has been conveyed under a trust agreement which specifies

the purposes for which it is to be used and the ultimate disposition to be made of it. It cannot be employed for the support of the clinic. It is specifically devoted to medical education and research. For the present, an annual budget is provided for the support of the Mayo Foundation. So long as the foundation remains independent, this budget will be expended and the educational and research work of the Foundation will be conducted by a chosen Board of Scientific Directors. The available clinical and laboratory material of the clinic is placed at the disposal of the Foundation for scientific uses.

The problem which is now pressing for solution in the minds of medical educators in Minnesota is this: Shall the unity of medical education in the State be preserved and strengthened by affiliation with this new field of teaching and research? Shall the scientific opportunities of the Mayo Foundation be cultivated and standardized under the control of the University? Shall they be directed and applied to educational uses from the University base? Or, shall two distinct and independent centers of medical education and research exist, instead, in the State of Minnesota?

For the Mayo Foundation, as a seat of graduate teaching and research, has been established. Affiliated with the medical school or not, it will go on in the good work it has begun. Its values in men and in material for educative purposes will not be permitted to go to waste.

#### THE PROPOSALS FOR AFFILIATION BETWEEN THE MEDICAL SCHOOL OF THE UNIVERSITY OF MINNESOTA AND THE MAYO FOUNDATION FOR THE PROMOTION OF MEDICAL EDUCATION AND RESEARCH

##### THE PROPOSED PLAN OF AFFILIATION FOR AN EXPERIMENTAL PERIOD

Negotiations for affiliation between the Medical School of the University of Minnesota and the Mayo Foundation for the Promotion of Medical Education and Research were initiated by Dean E. P. Lyon, at a meeting of the Administrative Board of the Medical School on October 8, 1914. A committee, consisting of the President of the University, the Dean, and the Secretary of the Medical School, and two other members of the Administrative Board was appointed.

This committee has acted conjointly with a committee of the Mayo Foundation and proposals have been formulated for an experimental period of affiliation between the two institutions. The terms of these proposals are as follows:

a. The Scientific Directors of the Mayo Foundation are to be nominated to and approved by the Administrative Board of the Medical School and, upon such approval, are to be appointed by the Board of Regents of the University of Minnesota.

b. The members of the staff of the Mayo Foundation are to be nominated by the Directors and approved by the Administrative Board of the Medical School.

c. The experimental period of affiliation proposed may be terminated at any time upon one year's notice by either party and upon the fulfillment of existing obligations to the student body.

d. The purposes of the affiliation are to be:

1. The joint conduct of graduate work. It is stipulated that all graduate students, working in either institution, are to be matriculated and registered at the University under the rules of the Graduate School; that all students' fees are to be paid to the University; that no charges upon the University are to be made for any work done in or by the Mayo Foundation; that details of graduate work, in general, and of each individual student's work, in particular, are to be arranged by joint committee; that credit for work at the University or at the Mayo Foundation is to be given by the University. It will be provided that all students receiving University credit shall spend a certain prescribed portion of time in residence at the University.

2. The interchange of graduate scholars and fellows; the details of such interchanges and the regulations governing them, in point of time to be spent and of work to be done by these scholars or fellows, at either the University or at the Mayo Foundation, to be determined by joint committee.

3. The interchange of workers, in assistantships, special lectureships, direction of laboratory work, conduct of elective courses and pursuit of research, in either field, as between the faculty of the Medical School and the members of the staff of the Mayo Foundation; the details of such interchange to be arranged by joint committee.

e. It is further provided:

1. That courses of graduate instruction in the affiliated institutions and the teachers conducting them, shall be approved by the committee of the Medical School on Graduate Teaching and by the Dean of the Graduate School, and that the conferring of degrees, to which such work contributes, is to be recommended by the Graduate



School to the Board of Regents of the University of Minnesota; and

2. That the Committee of the Medical School on Graduate Teaching be authorized to act conjointly with a Committee of the Mayo Foundation in arranging details of the above plan.

Such an experimental period of affiliation has been approved by vote of the General Faculty. The specific proposals, outlined above, have been approved by the Administrative Board of the Medical School and have been accepted by the Mayo Foundation. They have been submitted to the Board of Regents of the University of Minnesota for consideration and final action.

#### THE TENTATIVE PROPOSALS FOR PERMANENT AFFILIATION

Emphasis should be put upon the fact that the sole issue now under discussion is that of temporary affiliation and that the plan of permanent relationship has not been finally approved. These proposals are essentially tentative.

The endowment fund is to remain untouched, is to be increased annually in principal and by accrued interest, during the experimental period of affiliation. Should this experimental period be undertaken and prove successful, the Founders of the Mayo Foundation have already provided that, with the approval of the University, the present Trustees in charge of the endowment fund shall surrender it, for entire control, in investment and expenditure, alike, under the purposes declared in the gift, to the Board of Regents of the University of Minnesota. No restrictions are placed upon the Regents, excepting that the educational and research work is to be maintained at Rochester in affiliation with and directed by the University.

It is provided that should the Mayo Clinic, for which the University will be charged with no responsibility whatever, fail of self-support or deteriorate in the quality of its work, and no longer supply, for the uses of the Foundation, sufficient clinical and laboratory material, the Board of Regents may, at its discretion, make other arrangements for the continuance of the Foundation. Suggestion of a subsequent renewal of relations with a possibly resurrected clinic at any time has been discussed, but is not regarded, by either party, as an essential point. In all other respects, the conditions of the experimental period of affiliation are to become those of the permanent relation, subject to modification by joint agreement when the event is to be accomplished.

Summarized, the proposals mean:

a. The Mayo Foundation is an accomplished fact. It exists for the prosecution of medical research and the encouragement of graduate study.

b. It is endowed with an ample fund to be used for the specific purposes of the Foundation and for nothing else.

c. That fund is irrecoverably in the hands of a Board of Trustees instructed, if affiliation becomes permanent, to turn it over to the Board of University Regents. It will belong to the University.

d. The Foundation, its work, its workers and its finances, will be definitely separate from the clinic.

e. The Foundation is to be definitely controlled as to expenditures, personnel of staff, courses of instruction and credits by the Board of Regents.

f. Graduate students, directed by the University, will do work both at the University and in the Mayo Foundation at Rochester.

#### THE APPRAISAL OF VALUES

It is well that the advantages which offer to the University Medical School in this affiliation be carefully appraised. Such a gift to medical education and research is so unusual and looms so large in its possibilities that one marvels that its benefits should need statement. Nevertheless, a State institution is the one type of beneficiary which has the duty of examining carefully the conditions of a gift. The values not only of the gift itself, but of the opportunities it opens up, are cited.

It might seem enough to say that with the ultimate control of this endowment for higher medical education and research by the Board of University Regents, the whole tale of benefits to flow from it would be inclusively told. But this event takes exception to the mathematical principle that the greater includes the less, perhaps because the seemingly less is really the larger.

The association of the Medical School with a body of professional men who have successfully applied economic principles to the practice of medicine, who have approximated the ideals of medical service, who have achieved distinctive and effective methods of clinical investigation, has clearly apparent worth.

The contribution to the service of the Medical School of men of ability and distinction who will give their time and energy to the work of the Foundation under the direction of the Univer-

sity; the devotion of an immense mass of scientific material to the uses of education and research, and both without a dollar of expense to the State, either for buildings or maintenance, have a significance that does not need emphasis.

The immediate development, with a minimum of cost to the University, of a Graduate School in Medicine which will stand absolutely alone in the sphere of medical education in America, as compassed today, and will set the type of graduate instruction for the country at large, is an opportunity not to be put by and one of which leading medical educators throughout the country are taking full account.

The substantial improvement and immediate enlargement of the mechanism of efficient training of specialists in medicine,—a most important service to the State,—and again without increase of budget, means more to the future of medical education than can be foretold.

The stimulative influence of the work of each affiliate upon the other, by means of the ready exchange of teachers and workers, will be far greater by virtue of the distinctive place and character of each institution than were they completely merged and their individual identity lost.

The stimulus to medical research which must come out of the friendly rivalry and the mutual assistance of men in the two institutions; the enlarged vision of problems which should widen with the increased means of solving them, should mean the higher development alike of the teaching faculty and the Foundation staff.

The encouragement that this affiliation would afford to the development of other agencies of medical education within the State, the suggestion it conveys of extra-mural assistance to be sought in the service of medical teaching, should not be overlooked.

#### THE OBJECTIONS TO AFFILIATION

Doubtless there are objections to the proposed affiliation which it is better not to define; but, indubitably, there are medical men and medical educators, of lofty purpose, who are fearful of so new and so broad a departure in the history of the Medical School.

That affiliation of the Medical School with the Mayo Foundation is an improper thing, because the latter will derive its financial support and its scientific material mainly from the Mayo Clinic and because the clinic is a private enterprise and conducted for profit, appears to be the crux of opposing argument in the minds of many.

Could any contention that the Mayo Clinic is ethically, professionally or scientifically unfit be sustained, this argument might gain weight. Since the ablest and most sincere opponents of the plan hasten to lay a tribute of respect before the men who have founded the Mayo Foundation, the argument loses force. Granted the integrity of the institution, the plea applies as properly to every clinical teacher who, whether singly or in association with his fellows, is, simultaneously with his teaching function, engaged in the private practice of his profession.

The proposition that the Mayo Foundation is inseparable from the Mayo Clinic and that in affiliating with the first the University necessarily goes into partnership with a private professional business, is destroyed by many a precedent and demands specific correction.

#### METHOD OF SEPARATING THE FOUNDATION FROM THE CLINIC

A careful examination of the work now conducted at Rochester shows that it is practicable to separate the scientific and educational work (which will belong to the Foundation) from the business of treating the sick (which will belong to the clinic).

The scientific and research work occupies nearly three floors of the new building. To these floors patients do not go. Half of the staff members never see patients. Some are not even remotely concerned with the patients of the clinic. They are full-time laboratory research workers. Others divide their time between practical duties connected with the clinic and investigation.

The method of dividing the foundation from the clinic will be worked out along these lines: Any laboratory devoted entirely to research and teaching will be supported by the Foundation. Any apparatus, animals, chemical supplies, etc., needed for these purposes will be furnished by the Foundation. The salary of any chemist, pathologist or other worker engaged wholly in teaching and research will be paid by the Foundation. Part of the salary of men giving part of their time to this work may be borne by the Foundation. Expenses of scientific publication, etc., may be paid by the Foundation. Fellowships may be supported by the Foundation. In fact, the Foundation may do any of the things for the furtherance of medical education and research which would be proper for it to undertake if it stood alone, and may do only such things.

On the other hand, all expense connected with the care and treatment of pay patients must be borne by the clinic. A man engaged wholly in this work could not be paid by, nor connected with the Foundation. A laboratory used only for clinical diagnosis would be supported by the clinic, not by the Foundation.

Thus we get concepts of the Foundation and the Clinic standing as separate and distinct institutions, each with a certain number of full-time workers not engaged in the other at all, and with a certain number of part-time workers divided between the two institutions. The Foundation would by lease or gift be entitled to quarters in the clinic building and by proper arrangement have the right to use the clinical material for purposes of research and education to the extent that the clinic may deem wise and to the extent that the Foundation may desire.

The clinical, part-time teachers in the University Medical School send specimens from their private practice to the University laboratories. They use their private case histories in writing articles which go out in the name of the University. They make use of University pathologists for making autopsies in private cases, and the materials are worked up in the University. All of these constitute analogies of the proper separation of the Mayo Foundation from the Mayo Clinic in the same way that the University work of part-time teachers is separated from their private practice.

That affiliation with the Mayo Foundation will serve to arrest the development of an adequate clinical system at the University, is the expression of a fear which has taken possession of some who frankly say that could this apprehension be removed they would find no other valid objection to the plan. The difficulty is that, while this fear is believed by the administrative officers of the University and the Medical School to be without foundation, to be a mere ghost which these men have raised, no assurance to the contrary can, with propriety, be given. The administration cannot commit future Boards of Regents or future legislatures to any program of clinical development.

It may only be said that this fear is unshared by the proponents of the plan, that it has never been shared by any of them in either institution; and that, on the contrary, they hold that the nat-

ural stimulus to the growth of the Medical School which the affiliation must be, will insure the speedier completion of the absolutely essential hospital laboratory of the clinical teacher.

That the Mayo Foundation would not be adequately controlled by the University and would be subject to the dictation of its Founders, to the detriment of its stated purposes, is an argument most effectively answered by inviting the reader to review the foregoing statement of the terms of affiliation. A fund of one and a half million dollars or more to go under permanent affiliation and without reserve, save as to the location of the work, into the hands of the Board of University Regents; a Board of Directors of the Foundation approved by the Medical School and appointed by the Board of Regents; a Foundation staff similarly approved by the Medical School; registration of students, courses of instruction and credits for study, controlled by the University, are the safeguards which the plan details.

That the State University should confine its activities strictly to the University campus is a time-honored and traditional view. It is not the view of modern educators. To avail itself of every fit agency of education and research throughout the State, by which its effective force may be increased, is as much the part of the modern State University as is the prosecution of extension work on a campus as wide as the State itself.

#### AFTERWORD

After all, the one real question involved in the project for affiliation of the Mayo Foundation with the Medical School is this: Will that affiliation, in substantial measure, enable the State to achieve more quickly, to approximate more closely, to realize more fully the highest ideals of medical education, to the attainment of which, as the public parent of medical education in the State, it is pledged?

GEORGE EDGAR VINCENT,  
ELIAS P. LYON,  
JAMES E. MOORE,  
JENNINGS C. LITZENBERG,  
RICHARD OLDING BEARD, Chairman,  
Committee upon the Relations of The  
Medical School with the Mayo Founda-  
tion.



## UNIVERSITY-MAYO AFFILIATION

## STATEMENT OF THE REASONS UNDERLYING OPPOSITION TO THE PLAN

The proposition under discussion conveys to the affiliate body—a private corporation and, in the last analysis, a private firm—an amount of prestige, power, authority, rights, and privileges such as are without modern precedent.

It is being pressed despite the opposition of at least eighty per cent of the clinical staff of the Medical School, the protest of various medical societies, including the two largest in the state, and the emphatic disapproval of medical alumni and of the great body of Minnesota physicians.

Minnesota physicians and Minnesota's medical alumni alike demand that the School shall maintain its independence, steady growth within its own proper field, concentration, strict supervision of teaching, and the avoidance of innovations and alliances prejudicial to the University itself and to medical education in the State.

Upon the initiative of its own faculty, the Medical School for years has sought to inculcate the vital principle that work within and for the University represents public service of the highest type, and has so scrupulously avoided any admixture of private and University interest as to withdraw its clinics not only from private, but even from semi-public hospitals, and absolutely refuse its faculty members the privilege of teaching in their private clinics or offices.

In the University Dispensary no man is permitted to refer any patient to his own office, or to permit any such reference on the part of any employee of that institution.

A yet more striking example is found in the persistent and emphatic refusal of the clinical faculty to permit the establishment of pay beds in, or the admission of paying patients to, the University Hospital.

The great majority of clinical teachers receive no salary and must earn a livelihood in private practice, but the divorce of private from public duty is absolute.

We believe that the direct teaching of all students, graduate or under-graduate, who receive the diploma of the State University should be conducted in public charity hospitals, state or municipal, in its proper clinical field, and that such instruction should be given by its own directly nominated and controlled teaching staff. They fear any environment for their students other than that wholly free from the commercial

atmosphere as tending to impair in the student the high ideals, altruism, and self-sacrifice, and the sense of public service basic in the practice of medicine.

So striking had been the high spirit, unity, steady growth, and development of our School up to the last two years that eminent American educators have predicted preeminence for the School. Such predictions were not based upon any assumption of the farming out of the teaching it should do for itself in its proper time, upon any entanglement with private interests, or violation of the established and long cherished principles of unity and independence.

The Mayo Foundation is housed in the Mayo clinical building, is under the direct control of said clinic as to its activities and the direct expenditure of its funds and is, therefore, inseparable from the firm of Drs. Mayo, Graham, Plummer, Judd and Balfour, all of whom are related through ties of blood or marriage.

The great renown of this firm arises not alone from the skill of the Mayo brothers, who as surgeons rank among the first ten in the country, but from its effective organization, its primarily unfortunate location in a small city, the large amount of statistical material which has emanated from it, the well-sustained modernity of its methods, and, to a great degree, from the remarkable ability, forceful and charming personality, and prescience of Dr. Wm. J. Mayo, who is chiefly responsible for the organization and management of the Mayo clinic.

Within and without the clinic it is freely stated that, lacking him and his executive and administrative ability, its present prestige could not be sustained, *and it has long been evident that the danger of deterioration or collapse could be avoided only by a huge endowment, or, better still, an endowment and University affiliation combined.*

The surgical facilities at Rochester are fully equal to those of other great clinics, but it suffers somewhat from the disadvantage inherent in any attempt to combine teaching and research with the conduct of a gigantic private medical business.

We have just learned that Dr. Mayo in the event of the establishment of affiliation will extend the clinic to cover all departments of medicine as a part of the work of the firm in Rochester, and in any event it is obvious *that union with*

*the University, and the right to demand credit for work there done and to recommend students for special degrees become gifts of incalculable value to the Mayo firm.*

Indeed, it would be necessary that the mantle of some great University be thrown over their clinic in order that it might be made attractive to men of recognized preeminence who would serve as heads of the different departments, and who otherwise are in great measure unobtainable.

This plan, if successful, would result in a great clinical school, graduate, and no doubt under-graduate as well, inasmuch as this latter feature was distinctly suggested in the *first* proposal made to the University which states under section 6, paragraph (a) that "*under-graduate work will not be undertaken at the present time.*" It is manifest to all who have visited the clinic that under-graduate instruction is at present impossible at Rochester save to a very limited degree.

An eminent consulting accountant interested in the plan informs us that the increased revenue which would accrue to the institution under such development, and by reason of such affiliation as is proposed, would greatly increase the annual revenue of the firm, at present said to exceed a million and a half dollars net. That any such idea occurred to Dr. Mayo in making this proposal is of course wholly impossible. He doubtless has acted in all honesty and sincerity.

The need of endowment of the firm and its clinic has long been recognized and for several years the Doctors Mayo have set aside annually about half their immense income for this praiseworthy purpose, and have accumulated an amount said to exceed a million and a half dollars.

*The endowment of the firm is nothing new, but the proposal to make it a means of union with the University through the so-called foundation has aroused a storm of criticism.*

One of the irritating features attending the promotion of the affiliation project has been the apparent disregard of the immense value of the gift contemplated by the University. However great may be the surgical prestige of the Mayo firm, it is nothing as compared to that of a great University, and the reasons must be most substantial to justify the proposed action, quite apart from the question of resultant financial benefit to the affiliate, of special privilege, of favoritism, or even of the abandonment of the long established principle which demands abso-

lute divorce of State University functions from private business.

The proposed agreement so far as known to the Administrative Board of the Medical School, after many changes, reads as follows:

"Resolutions. Whereas: An Institution known as the Mayo Foundation for the Promotion of Medical Education and Research has been incorporated, in which educational and scientific work in medicine is being, and will be done; and—

"Whereas: Certain proposals for an experimental period of affiliation between the Medical School and the Mayo Foundation have been formulated and considered; and—

"Whereas: It is understood (a) that the Mayo Foundation is to be supported during the proposed experimental period of affiliation by an annual budget to be provided by the Founders; (b) that this budget is to be expended by a Board of Directors, which will also be charged with the supervision of the educational and scientific work of the Foundation; (c) that this Board of Scientific Directors is to consist of six physicians or Medical scientists, five of whom are to be nominated by the Founders and one by the Medical School, all of whom are to be submitted for approval to the Administrative Board of the Medical School and, upon such approval, are to be submitted for confirmation to the Board of Regents of the University of Minnesota; and (d) that the teaching and scientific work of the Foundation is to be conducted by a staff, the members of which are to be nominated by the Board of Directors of the Foundation and are to be submitted for approval to the Administrative Board of the Medical School.

"Resolved: That such an affiliation for such an experimental period be recommended to the Board of Regents of the University of Minnesota, with the understanding that this period of affiliation may be terminated at any time upon notice of one year by either party to the affiliation and upon the completion of existing obligations to students.

"Resolved: That (a) a reciprocal relationship for the conduct of graduate work be undertaken; with the understanding that credit for work in either place is to be given by the University; that registration of graduate students is to be made at the University; that students' fees are to be paid to the University; that no charges are to be made upon the University for work done in or by the Mayo Foundation; that the details of such reciprocal relation and of the work to be undertaken by graduate students, in general and for each individual student matriculated at either place, are to be arranged by joint committee.

"(b) That an interchange of graduate scholars and fellows as between the University and the Mayo Foundation be had; that the details of such interchanges and the regulations to govern them, in point of time and of work to be done by graduate scholars or fellows in either place are to be worked out by joint committee.

"(c) That an arrangement of opportunities for interchange of workers, in the way of assistantships, special lectureships, direction of laboratory work, conduct of elective courses, and the pursuit of research, in either field, by the Faculty or Foundation members is to be

made and that the details of such interchanges of workers are to be arranged by joint committee.

"(d) That courses of graduate instruction conducted in the affiliated institutions and the teachers conducting the same, be under the approval of the Committee on Graduate Teaching and the Dean of the Graduate School; and that the conferring of degrees, to which such work contributes, is to be recommended by the Graduate School to the Board of Regents.

"(e) That the Committee on Graduate Teaching of the Medical School, including the dean of the Graduate School, be authorized to act conjointly with a Committee of the Mayo Foundation in arranging the details of the matters referred to above."

The Articles of Incorporation, which have never been submitted to the clinical teaching body of the School, the general faculty, or the administrative board, are as follows\*:

#### ARTICLES OF INCORPORATION OF MAYO FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH, INCORPORATED

Know all men by these presents: That we, the undersigned, do hereby associate ourselves together for the purpose of forming a corporation under and by virtue of Chapter fifty-eight of the General Statutes, 1913, of the State of Minnesota, and for that purpose do hereby make, execute and adopt this Certificate of Incorporation.

Article I. The name of this corporation shall be Mayo Foundation for Medical Education and Research, Incorporated, and the principal place for the transaction of the business thereof shall be the City of Rochester, in the County of Olmsted and State of Minnesota.

Article II. The general purposes of this corporation shall be educational, scientific, medical and surgical and to establish, maintain and operate clinical, pathological, medical and surgical research laboratories; to provide, erect, own, lease, furnish and manage buildings for use, in whole or in part, by this corporation; and to transact any other business and exercise any other powers granted by the statutes of said State.

Article III. *The first members* of this corporation shall be William J. Mayo, Charles H. Mayo, Henry S. Plummer, Edward Starr Judd and Donald C. Balfour, all of whom reside at Rochester, Minnesota. In case of the death, resignation, incapacity or removal of any member, the vacancy shall be filled in such manner as may be provided in the by-laws. Any person may be admitted to membership by the unanimous vote of all of the other members. All members shall hold such membership during life, or until resignation, incapacity to act, or removal for such cause as may be provided in the by-laws. There shall be no contributions or dues required of any of the members.

Article IV. There shall be no capital stock of this corporation.

Article V. The officers of this corporation shall consist of a President, Vice-President, Secretary, Treasurer, a Board of Trustees consisting of not less than three nor more than nine members and a Board of Scientific Directors consisting of not less than three

nor more than nine members, etc., etc. The board of trustees to be elected at the first meeting of this corporation shall be divided into three classes to be known as trustees of the first, second and third class, respectively; the term of office of the trustees of the first class shall expire on the second Monday in January, 1916, the term of office of the trustees of the second class shall expire on the second Monday in January, 1917, and the term of office of the trustees of the third class shall expire on the second Monday in January, 1918; at each annual meeting of the members the successor or successors of the trustee or trustees whose term expires in that year shall be elected to hold office for the term of three years and until his successor is elected, so that the term of office of one class shall expire each year.

The board of Scientific Directors shall be divided into a like number of classes, to hold office for like terms and *to be elected by the trustees* at such time and in such manner as may be provided by the by-laws.

*The Trustees shall be elected by and from the members* at an annual meeting of the members to be held at Rochester, Minnesota, on the second Monday in January of each year at eight o'clock in the afternoon. All the other officers shall hold office for one year and until their respective successors are elected and enter upon their duties.

The duties of the officers, trustees and directors shall be prescribed by the by-laws.

Article VI. A board of trustees of five members and a board of Scientific Directors of three members shall conduct the transactions of this corporation until the first annual meeting of the members.

The first meeting of the members of this corporation shall be held in the Assembly room of the Mayo Clinic in said City of Rochester on the 11th day of February, A. D. 1915, at eight o'clock in the afternoon.

The University is asked to delegate to the Mayo Foundation substantially the same powers with respect to credit for work done in the clinic of the Mayo firm, which would include its own building and St. Mary's Hospital, and essentially the same right to recommend graduate students for special degrees as is possessed by the Medical School itself.

The Mayo firm becomes the primary self-perpetuating and controlling Board of Trustees of the Mayo Foundation, and elects the Board of Scientific Directors, with whom lies the initiation of all teaching appointments, the making of budgets, the direct expenditures of all funds, and the immediate supervision of teaching in Rochester under the terms of the proposal and the Foundation.

The powers of confirmation or rejection of individual nominations granted the University, both with respect to the appointment of these scientific directors and to that of the teachers acting under the terms of the Foundation, are what are termed by business men and legal au-

\*Italics are author's.



thorities, only *formal*. In the case of these directors the University may nominate one of the six members who compose this board, *which is otherwise nominated and elected by the members of the Mayo firm acting as the controlling trustees of the so-called Foundation. True power lies with the nominating body.*

In the present agreement no reference is made to the holding of the endowment fund itself, but this, at present, is in the hands of certain trustees selected by the firm and in the early proposals it was stated that ultimately, in the event of a permanent arrangement such as might replace the minimal temporary affiliation period of *three years*, such fund would be placed in the hands of the Regents of the University, *they being instructed specifically as to the class of investments and given in this relation only the formal powers of custodianship and of general supervision.*

In all the proposals, the making of budgets and the direct control of available funds is left to the Foundation at Rochester.

The remote possibility under an earlier proposition that the University might, at some time in the future, in event of the collapse or deterioration of the Mayo clinic, acquire actual ownership of the endowment fund and buildings of the firm or Foundation was qualified by the curious sentence—*"but if at any future time the Mayo Clinic should again be reestablished, on a basis satisfactory to the Board of Regents, the relationship between the Mayo Foundation and the Mayo Clinic shall be again resumed."*

Obviously the differentiation of the activities of the Mayo firm from those of the so-called Mayo Foundation is impossible, the blending of the interests and activities being so complete as to substantially accomplish at one stroke, through the Foundation fund and through affiliation, the perpetuation of the Mayo Clinic and its conversion into an integral department of the University.

Not a dollar of the Foundation fund is to be spent directly by the University itself for its own uses or outside of the Mayo clinic in Rochester, and apparently every possibility of any ultimate reversion of the main fund to the Regents, with respect to actual ownership and perfect freedom of use, is removed.

Even were it possible to argue that such an effect is not produced fully, and *we are but repeating the opinion of business men and attorneys*, it would require only a second endowment fund, easily created out of the revenues or the

great private fortunes of the senior members of the clinic, to accomplish the same effects.

*There is no money gift to the University in this proposition.*

It may convey surgical prestige, and does furnish an opportunity to farm out our graduate teaching and thus perpetuate a fundamental error represented by the adoption and precipitate promotion of an elaborate and attractive graduate plan, which was beyond the powers of the Medical School to carry out on a large scale at the time of its adoption.

We believe it would be simpler and wiser to limit this feature of our teaching to what we are able to do ourselves, until our requests, made vainly of the Regents for three years, for funds sufficient to complete our controlled campus clinic, shall be granted. This need, the satisfaction of which would mean a demand upon the legislature exceeding by only \$150,000 in building appropriations the amount at present asked, and funds for support, would shortly remove all excuse for such action as is proposed.

Indeed, the advocates of the premature establishment of a graduate school, in meeting objections based upon the inadequacy of our facilities, used as an argument the favorable effect which it would exercise in relation to appropriations; *now we find this argument transformed into the main reason assigned for union with a private corporation.*

You will wonder, as we have, that any faculty should be asked to accept so indefinite a proposal, or be urged to act at a time when the Foundation was not in existence and in entire ignorance of the Articles of Incorporation under which it was to be created, and we regret that this matter, which primarily and chiefly involves the clinical side of the School's development and activities, should have been pressed urgently to approval *despite the fact that at least eighty per cent of the clinical teaching staff were emphatically in opposition.*

So too, we wonder at the reports which come to us through the public press, but which we decline to credit, that the Regents, before all the arguments are in, are ready to approve in some form this unique proposal, despite the formal protest of medical societies and the well-known attitude of the alumni of the School.

That this proposition definitely represents a barrier to, and an actual substitute for, that early completion of the campus clinic, indispensable to graduate teaching on a large scale, is definitely known through authorized interviews appearing

in the Minneapolis Tribune and Minneapolis News, under date of February 8th, in which it is stated that through this affiliation legislative appropriations, otherwise urgently necessary, may be avoided or deferred.

Indeed, this effect becomes obvious from a study of the plans.

To us, who for years have entertained the belief that our needs in this direction would be supplied by the Regents, this is a great blow, and represents in our minds not only a check to the School but a serious blow to the *morale* of its teaching faculty.

With completion of our focal controlled campus clinic and our great municipal hospitals filled with abundant and diversified clinical material, we should need no affiliation with an outside institution in order to take on fully functions of graduate teaching, and, as before stated, the additional sum of \$150,000 in appropriations and a support fund is all that is needed to complete our development.

If affiliation under any such plan be at present undertaken it must inevitably mean a weakening of our own School and a great danger of its submergence for the possibilities in the way of endowment for the Foundation are almost unlimited, yet, free from affiliation and granted that which is our right with respect to development, we have no fear of competition.

Denied this right and bound to an institution possessed of unlimited potentiality of resources, we must fear and believe that the affiliate tail would wag the affiliating dog.

If the Medical School is to remain in irons as it has been for several years, deprived of necessary funds for clinical development and such a budget as is necessary to its proper internal growth, and if, in addition, it is linked organically with the Mayo clinic or Foundation, we would suggest the advisability of making, ultimately, the Medical School of the University a half school, letting the clinical teaching be taken over by the Mayo firm.

*If economy alone be sought, and is more essential than the fulfillment of the promise of our School, this is the step to take.*

It is argued that should this offer be declined further hospital buildings could not be obtained, but in view of the adverse feeling excited by the proposition we believe the reverse is true.

Furthermore, no statement with regard to the impossibility of securing appropriations is of value unless the effort has been made repeatedly

and has failed. Many believe that the present policy with respect to the securing of appropriations is unlikely to result in fulfillment of University needs.

A State hospital for the sick poor used in the training of physicians returns directly in service many times the total amount spent for its maintenance, and represents one of the most useful and beneficent functions of the State.

The legislature has never refused support to the Medical School when it has been proven that the need was urgent and that the moneys would be properly used.

The arguments in favor of the plan may be reviewed *seriatim* and have, for the most part, been already dealt with.

1. *That such a plan of affiliation as is proposed is desired by Regent Mayo.*

We need not and do not question Dr. Mayo's motive with respect to this matter—he unquestionably believes himself to be giving rather than receiving—but on the other hand we cannot fail to see the enormous preponderance of advantage to the Mayo clinic, nor close our eyes to the actual financial returns which such affiliation would bring.

2. *That a great gift is made to the University.*

There is certainly no money gift. Whatever of reflected prestige might be had seems trifling when compared to the manifest disadvantages and dangers to the Medical School involved in the proposed union of the State University with a private corporation.

3. *That much helpful advertising and publicity might be achieved through affiliation.*

The affiliation plan has been published all over the country as a great gift by the Mayo firm to the University of Minnesota so that whatever of advertising has been had so far has been perhaps one-sided. Again one must say that whatever of particular benefit accrues to the University itself is as nothing compared to the evident dangers and disadvantages of the plan proposed.

Moreover, the declination of such a proposition upon any sound grounds would involve an amount of advertising and publicity far greater and much more creditable.

4. *That we must at once proceed to carry out expansively the elaborate plan for graduate teaching already formulated and partly instituted.*

As before stated, it would seem better to admit the fundamental error in the precipitate adoption of such a plan on any scale which we cannot our-

selves meet rather than to attempt a correction of one mistake by another which would be far greater.

We should prefer that our need of graduate facilities be emphasized and used as a means for obtaining the necessary funds for the completion of our campus clinic and the internal development of the School.

5. *That if we fail to effect affiliation we shall excite great antagonism throughout the state.*

This contention would seem to be absolutely disposed of, and to need no extended argument in view of what we believe to be the widespread opposition to the plan.

6. *That prominent educators throughout the country have written to our Dean approving the plan.*

It may be stated, first, that every plan affecting a State University is to be judged first and most intelligently by the members of that institution, and by such as are best informed as to the necessities of the school affected, and the probable effect which will be wrought by any proposed action. It is in short our own affair.

Moreover, before one can place any estimate upon the value of any such correspondence he must know definitely the answer to certain specific questions and he must be aware of the contents of any letter or letters which have been written in eliciting the favorable replies.

One would desire to know (1) if said correspondent was specifically informed that an overwhelming majority of the clinical teachers of the school were against the plan, or whether the now familiar statement with respect to the general faculty, that it voted thirty-nine to twenty-six for approval, took into consideration the fact that twenty-six of the votes cast were those of laboratory men, secure in their facilities and development, seeing increased opportunity in the teaching of students coming from the affiliate institution, and honestly unable to see any disadvantage in the proposal.

(2) We would ask if the full proposals and the Articles of Incorporation of the Mayo Foundation were made a basis for such opinions. This would be absolutely necessary in order that the peculiarities of the so-called Mayo Foundation itself with respect to the control of its affairs, no less than its relationships to the University and to the Medical School, might be understood, for in many respects these are unique.

(3) We cannot accept the mere affirmation of approval, but must know whether or not this was based upon present proposals, whether it was

qualified or unqualified and, if the former be the case, what restriction or criticisms were involved and whether these are met under the present proposals.

(4) Has the correspondent been led in any way to believe that the Mayo Foundation is an unhampered, philanthropic institution, separate and distinct from any private undertaking, or does he know that its activities are inextricably blended with business functions and, in the last analysis, controlled by the Mayo firm?

(5) Does he understand the urgent needs of our controlled clinic and know that this affiliation is avowedly a substitution for its early completion?

(6) Is he aware of the sentiment of the physicians of the state as so far expressed and does he appreciate the injurious effect of such adverse feeling towards the Medical School and University?

In conclusion, I may say that every statement relating to this matter which involves the legal or business side has been submitted by us to many members of the bar, prominent business men, and financial experts and does not represent the opinion of medical men alone.

We are sure that you will credit us with the same honesty and high motives with which we so readily credit the proponents of the plan. Most of us are alumni of the School; many of us have been privileged to participate in the labor involved in its development, and one and all of us believe that the best interests of the School, of the University, of medical teaching in the state and nation, and of humanity itself demand the rejection of this proposition and a return to the ideals and principles under which medical teaching in Minnesota has advanced from a stage represented by a mere group of proprietary schools to its present position.

The affiliation proposed represents a step backward and violates long cherished ideals of entire separation from private interests and of proper and safe development.

We believe it to involve an arrest of natural growth, a loss of faculty *morale*, deterioration, and even the danger of actual submergence of our own School.

We see in it a delegation of power and special privilege without modern precedent, and an enormous potential financial advantage to the affiliate, and shall make every effort to prevent what we believe would be an irreparable disaster to medical education and ideals.

CHAS. LYMAN GREENE.



# THE MAYO FOUNDATION FROM THE STANDPOINT OF THE GRADUATE SCHOOL

BY GUY STANTON FORD, Ph. D.

Dean of the Graduate School

MINNEAPOLIS

In discussing co-operation with the Mayo Foundation from the standpoint of the Graduate School, it is at least not difficult to keep in mind the essential nature of the problem which the regents, administrative officers, and faculties of the University are considering. It is an experiment in training some thirty or forty well prepared young graduates of high grade medical schools for careers as medical scientists, medical college teachers, or specialists in active practice. The net result, if the difficult work is well done, is, in all three fields, a needed social service. The University has the right and the obligation to undertake it and, in doing its part, to make use of every opportunity and means for adequate training in this relatively unoccupied field. It cannot too often be emphasized that what is here contemplated has nothing to do with the old polyclinic idea of a graduate school of medicine where a group of busy city practitioners gave a hurried six weeks' course to practitioners who went home with a certificate to frame and a debt to pay by sending patients to the city specialists. The plan in contemplation will require of a selected group that they spend three years in advanced work, meeting at the end the most rigid tests possible, that of showing their calibre, as investigators, by the preparation of a scientific contribution which definitely increases our ability to cope with disease. Medical educators and university administrators who are assuming the responsibility of making this exacting preparation possible could have but one possible fear and that is,—not that there might be too much material, too many qualified instructors, too much financial support,—but rather that in every point there may be too little. In considering this essentially educational problem all fears may be reserved for our limitations and none for our opportunity to diminish them by co-operation and control of the Mayo Foundation.

Since September, 1914, the Graduate Committee of the Medical School, as the responsible unit of the Graduate School, has been directing the work of a group of a half-dozen such graduate students as I have described above. The problems involved have never been adequately worked out in any university. It is all path-breaking

work. Only the four essentials of all adequate graduate work were clear—only well prepared students should be encouraged, only well trained instructors should be in charge, adequate clinical facilities and material were essential and the results of bringing these three factors together should be tested by the established standards of scientific research. In none of these things should undergraduate standards prevail. Where a half-dozen cases or operations might give the undergraduate student the accepted treatment, a hundred might be too few to enable the graduate student to strike out in new paths.

This was the situation when, after following in a general way the discussions of the medical faculty concerning co-operation with the Mayo Foundation for graduate medical research and education, I made a personal investigation of the matter from the standpoint of the Graduate School. If the reader will recall the first three essentials of graduate work mentioned above, qualified students, qualified instructors, adequate material and support, he will have in mind the approximate standards any Graduate School administrator would apply.

My investigation was made in the second week of January and I found a condition existing which satisfied me upon all three points. There was in existence a well endowed teaching foundation whose funds were already sufficient to carry its part of a teaching staff and laboratory equipment, and in addition give good paying fellowships to a group of graduate students. Of the wealth of material and equipment for such students I should need to make no mention, if it were not for the fact that I am not speaking of the first floor of the Mayo Building primarily, nor of the operating rooms at St. Mary's Hospital. I found what I was looking for in the laboratories, museum and library of the upper floors, and in the countless case records in the basement of the Mayo Building. The richness of this material, not seen by the casual visitor, furnishes opportunities for graduate medical work in certain lines such as can be found nowhere else on this continent, nor probably in the world. I found a research and teaching staff, available and at work, sufficient to do its full part in an

independent teaching foundation, and most certainly its part in a co-operative plan such as that under consideration. Some of these were doing nothing but research. The only difference observed between those who were engaged part time in clinical practice and our own part time staff was that the private practice in Rochester was conducted under the acid test of observers from all over the world, and in Minneapolis our staff does its teaching in one-half of the day and devotes the other half in its own offices to private practice. Of the active staff at Rochester about eighteen were graduates or former members of the University Faculty. This applies also to four of the five educational directors. I found finally that a body of about thirty graduate students of international character was engaged on a three-year course and that their preparation was such that I should have no hesitancy in admitting them, with one exception, to the Graduate School at the University of Minnesota for the work we began last fall. As this whole matter of approving students, staff, and educational budget is to be in the hands of the University authorities we should have only ourselves to blame if standards and conditions are not maintained. In other words, there existed an endowed, well equipped, well-manned research and teaching institution needing only the things we

could best supply to make the combination of the Mayo Foundation and the Medical School of the University a unique and at present unparalleled Graduate School of Medicine.

There seemed to me, as the result of this visit, three possibilities. The Mayo Foundation might be left to live its own independent existence, it might seek affiliation with some other university outside the State, or, lastly, it might become what its generous founders desire, a present ally and, ultimately, a great and beneficent part of the University of that State where those founders were born and have spent their lives.

If there be any principle at the basis of our University as at present organized which prevents it from doing its great educational work for the State and the nation and the world by taking advantage of this and similar opportunities when they shall arise in agriculture, arts, engineering or medicine, then let us rebuild on principles that will enable us to fit our function.

It seems fairly easy to understand, I hope, why anyone interested in the development of graduate work would rather face the present fears of the few than have the next generation point out his folly in not having favored at least, an experimental period of co-operation with the Mayo Foundation.

## THE PRINCIPLES OF AFFILIATION

BY GEO. DOUGLAS HEAD, M. D.  
MINNEAPOLIS

Studied from the standpoint of the State, the proposed plan of affiliation between the University and the Mayo Foundation presents two grave elements of danger. First, the vital and far-reaching principle involved in the establishment of such relations as are proposed between an institution of the State and a private corporation or clinic, and second, the very large powers delegated to the private corporation or clinic in the control of the Foundation.

The consideration of the general principle involved is of first importance to the University. It cannot be reasonably assumed that an affiliation such as is proposed with the Mayo Foundation can be limited to this institution alone. Other clinics of like nature, perhaps not as large but certainly as worthy, will spring up in other parts of the Northwest. Will the University offer similar opportunities to these clinics? Further-

more, the work of the University ramifies in various channels of trade, mechanical and electrical engineering, law, architecture, journalism, etc. This policy of affiliation once adopted cannot be restricted to medicine. Other large interests, realizing the advantage to be gained, will seek similar relationships. I would state the principle involved as follows: "Is it wise for a State University to delegate its teaching function to private institutions?" The writer firmly believes that it is not a wise policy and for the following reasons:

1. A State University is an institution supported by the money of all the people of the State. Every man in this State who is a taxpayer contributes to its support. Every man should be equally interested in its welfare. Any method of instruction which the University may see fit to adopt, which tends to magnify or em-

phasize or attract attention to the work of one private corporation, institution or clinic in the State, to the exclusion of others of like nature, introduces a principle of favoritism which the University as a State institution cannot afford to encourage and will, by the dissatisfaction ultimately created, react against the institution and its work.

2. The acceptance of this affiliation establishes a bad precedent, because while in the first instance, the motives of those seeking the affiliation may be above criticism, as time goes on and the advantage to private institutions, of a University connection becomes apparent, men will strive for appointments upon the Board of Regents and for places in the councils of the University for the selfish reason of promoting their own material ends.

No matter how broad a view one may take of the motives involved, in this special instance, the fact remains that Dr. W. J. Mayo is a regent of the University and in his position as advisory regent for the medical department, should this affiliation be consummated, will frequently be called upon to decide matters of University policy vitally affecting the University on the one hand and the Foundation which he has created and in which he is more interested, upon the other hand. Is it wise for the State to place such large powers in the hands of one of its regents?

3. The main purpose of a higher institution of learning is to create an atmosphere of high ideals free from unworthy motives, in which young men and women may pursue their courses of instruction. The chief value of a college training to undergraduates and post-graduates alike, is not in the facts taught, but in the habits of thought developed, the inspiration received from personal contact with teachers of lofty ideals, in short, the intellectual environment with which the student is surrounded. It is for this reason that teachers should be selected with such care and placed in an atmosphere where they shall have freedom in the expression of their opinions and ideas.

In the keen business and professional competition which exists in this State at the present time and which will exist in the years to come, the atmosphere surrounding a private institution placed in competition with other institutions of like nature, will tend ultimately to become narrow. The chief concern of those engaged in the work of an institution supported by its own earnings must be primarily mercenary. This motive

may not be apparent, it may lie deeply buried in the scientific spirit which surrounds the institution; but, nevertheless, it must be the primary governing motive and as such will ultimately create an undesirable environment in which to train young men and women. It is for this very reason that the tendency in modern medical education is away from the private clinic in the private hospital. This is the chief reason why the medical department of the University has in the past five years, consistently pursued a policy against the continuance of the private clinic under private auspices and the Administrative Board of the Medical School has, in one specific instance during the past year, forbidden the giving of a private clinic by one of its faculty whose motives in the interest of medical education cannot be questioned.

Now with relation to the very large power delegated to the private clinic in the control of the Foundation. Looked at from the standpoint of the University, this is a very grave weakness in the plan itself and a serious danger to the University. It does not separate the proposed gift, namely the Foundation, from the private business of the givers, namely the clinic. The two are so interwoven in the plan that it is very difficult to separate one from the other and any consideration of affiliation by the University which does not give full emphasis to the rights of the private clinic in the control of the Foundation, fails to appreciate fully the far-reaching effect of this proposal.

I wish also to emphasize the fact that in this proposal no actual gift to the University is offered. There is a suggestion that under certain conditions this Foundation may revert to the University, but these conditions as stated are so vague and indefinite as to defy concrete analysis. It must also be remembered that no actual sum of money has been set aside and placed in the hands of the Board of Regents to use in the cause of medical education as it may deem wise.

The State University in thus attempting to avail itself of the opportunities offered finds that in order to do so it must enter into a silent partnership with the private clinic. This, as a State institution, the University cannot and should not do. Furthermore, the nomination and electing power of five of the six trustees of the Foundation rests with the members of the private clinic, the University exercising merely the right of approval.

In order to avail itself of the post-graduate



opportunities offered, the University must therefore place its students in an institution over which it has no direct control. It has been stated that the proposed affiliation is an experiment in medical postgraduate teaching, that it is only temporary and that no harm can come to the University because of the ease with which a separation can be made upon one year's notice.

For the very reason that this proposal is an experiment in medical teaching, that it is a departure from the long established methods of medical instruction, that it is something new and untried, the regents, alumni, and friends of the University should see to it that every phase of

the whole matter is given most careful study before it shall be adopted.

Looked at from the standpoint of an alumnus of the University and a teacher in its medical department, I believe no permanent good can come to the University should this proposed plan of affiliation be consummated, that the rewards at most can be only temporary, that an institution supported by the great resources of the State of Minnesota does not need to join its interests for teaching purposes with any private institution or any institution controlled by a private corporation.

## TEETH AS FOCI OF INFECTION\*

By FREDERICK B. KREMER, D. D. S.

MINNEAPOLIS

The growth of knowledge has demonstrated the existence of many phases of this subject hitherto undreamed of, and fraught with large possibilities for evil to mankind. It is no light matter to realize that the teachings of a hundred years have been based on error, and that human life has been the price exacted for our ignorance. The awakening has been long in coming, and Minneapolis stands today the center of the first successful effort to unite medicine and dentistry in a concerted attempt to unravel this problem, and place their findings on record for the benefit of all.

The last meeting of the Minneapolis District Dental Society was honored by the presence of ten or twelve of the most eminent members of your profession, all of whom participated in its deliberations on this most vital topic to our great and lasting benefit. Tonight you show your spirit of professional greatness by asking the profession of dentistry to join with you in farther quest of knowledge.

Admitting that the teeth may become sources of infection capable of materially affecting organs and functions remote from them, we are logically led to ask why and how.

To answer the first query, we must consider, for a moment, the structure of the teeth and jaws, and refresh our memory with a review of the changes that are constantly taking place in them, from the sixth week of intra-uterine life up to and including the time of eruption of the

third molars, called by the ancients "*dentes sapientiae*," because they arrived coincidentally with their conception of the time of budding wisdom, namely, from the seventeenth to the twenty-fifth year. A study of them must convince us that the maxillary bones are among the most complex structures of the body, and are subject to such variety and continuity of physiological change that they lend themselves readily to degenerative processes of pathological import, as well as to those of purely cosmetic character.

Roughly viewed, the jaw bones consist of a dense outer cortical and an inner cancellated structure. Viewing them more closely, we find growing from certain of their margins an osseous structure with sockets or alveoli for the reception of the teeth. This is known as the alveolar process, and it grows coincidentally with the development of the teeth, and disappears by process of resorption after the loss of these organs, and this with equal vigor and rapidity at all ages.

Talbot has called particular attention to the fact that the teeth, the gums, and the alveolar process are transitory tissues. By this statement he means that they grow and develop, remain for a time, and then are lost, only to be succeeded by a new set of teeth, gums, and alveolar process. Should the second or permanent teeth be lost the alveolar process again disappears by natural process of resorption. Neither the surgeon nor the therapist should view the alveolar process in the same light as the maxillary bone upon which it grows.

\*Read before the Hennepin County Medical Society, Feb. 1, 1915.

Its most marked claim to distinction over other bones is summed up in one word, *instability*; and this trait of character follows throughout its period of existence. From this statement it will be readily understood that such surgical procedure as is ordinarily employed in other of the osseous structures would be of doubtful value as relates to the alveolar process.

In this changing and transitory structure the teeth are evolved.

The first, or deciduous, teeth are scarcely erupted before the second set begin to form and crowd between and against their roots in an effort to dislodge them and make place for their own entrance into the field of masticatory activity.

Accompanying these phenomena and attacking the exposed or crown portion of the deciduous teeth, we all too frequently have that condition known as dental caries, or decay. If left to complete its activities, we have death and disintegration of the dental pulp with resultant abscess at the root apex, discharging its septic contents into this highly sensitized and vascular territory.

It being the rare exception to find a child of over two years of age without carious teeth, it is not a far stretch of the imagination to associate a possible relation between pulpless deciduous teeth and septic heart lesions so frequently observed in children.

The teeth are, at best, organs of low vitality, owing to the very large percentage of inorganic matter which enters into their composition. This becomes more apparent as age advances.

The dental pulp, or so-called nerve, is the formative organ of the dentine, with its odontoblastic layer on its outer or peripheral surface. Before calcification begins, it is all pulp. Unlike bone, it solidifies from its circumference toward its center, carrying constantly inward its structural elements until, in advanced age, it is not unusual to find the pulp entirely obliterated by calcific deposits.

Herein lies the principal reason why a tooth does not have reparative power in case of fracture, and also the evidence that it is of low vitality. A tooth has relation with the general economy through its pulp and its peridental membrane. While its vital connection is more largely pericemental than pulpal, yet both play an important part in this union, and the loss of the pulp measurably diminishes the physical resistance of a tooth, and renders it of so low vitality as to readily invite bacterial insult.

Teeth may become foci of infection in either

one of several ways: first and most frequently, by secondary deposits at the root ends from the blood-stream, as described by Ulrich in the *Dental Review* for December, 1914. This results in the formation of the blind abscess, which we understand to mean one which has no visible opening. This type of abscess is most to be feared, as it is painless in its formation and in the performance of its activities, and may be carried by the patient indefinitely without his knowledge. Having no sinus, it empties its products directly and entirely into the circulation.

Teeth may become foci of infection by direct planting of pathogenic organisms through cavities of decay and exposure of root-canal contents to the impact of food in process of mastication, thus forcing extraneous septic matter through the apical foramina by plunger or piston action into one of nature's best incubators.

This method usually results in the production of an acute abscess with rapid pus-formation and severe pain. Relief is usually had by surgical interference or by the formation of a fistula through the alveolar process and over-lying gum tissue. In either event, the major portion of its products finds outlet and escapes relation with the circulatory system.

That condition known as *pyorrhea* must also be considered in this connection. While I am inclined to believe that its value as an etiologic factor in other diseases of septic character has been greatly overestimated, it is of sufficient importance to merit our respect, and it calls for the closest scrutiny when present.

Its value is about that of any open suppurative ulcer of like size and character on any part of the body. Its etiology being in dispute, it has a speculative interest for us which should stimulate study of its genesis, as well as of its revelations.

Is it responsible for the loading of the blood-stream with pathogenic organisms, or is *pyorrhea* a secondary condition, and to be accepted merely as evidence of the presence in the blood-stream of parasitic elements? Will investigation prove to us at some later date that this condition is merely a barometer by which we may determine the degree of activity of these parasites?

Teeth may also become foci of infection by direct mechanical irritation of nerve-trunks or terminals by inducing trophic or nutritional neurones, thereby lowering their own resistance, as well as that of the immediately adjacent structures. Illustrative of this I will pass around

models of some few cases which may serve to make this point clear.

In examination of the mouth to determine its etiologic value in disease it is not alone sufficient to look for decay and its sequelæ, but one must also keep in mind the possible presence of unerupted teeth as well.

The deductions which I desire to draw from this statement of fact are, that by reason of the transitory character of the teeth, they are not suited for, and should not be subjected to, surgery below the alveolar border, except it be for their complete removal; that, due to the complex processes which the maxillary bones are called upon to perform, they are peculiarly prone to become the seat of pathological change; that the teeth are inherently organs of such low vitality that pulp-devitalization as a surgical or therapeutic measure is distinctly contra-indicated; that decay of children's teeth may be of serious consequence, and should be carefully thought of in their relation to the physical and mental welfare of the child; and, lastly, that unerupted or impacted teeth may be, and often are, foci of infection of the gravest character.

#### DISCUSSION

DR. J. N. PIKE: Before entering into the discussion I would first express my thanks for the invitation to come before this society.

I should like, in discussing Dr. Kremer's paper, to call attention to some conditions existing in dental practice and dental teaching. As physicians, you have been familiar with the growth of the doctrines of focal infections. You have been quick to grasp the importance of this newer focus,—the blind dental abscess. There has been a certain amount of commotion in your ranks because of the suddenness of the discovery, and the really alarming fact that probably 80 per cent of all adults in this country are carrying foci of infection in the form of a periapical abscess on one or more teeth. There could not help being a great deal of interest over this condition among dentists because apparently some very marvelous things were happening. They felt that the x-ray and the science of bacteriology were proving what dentists had long contended, that the mouth held many dangerous possibilities. But dentists had no idea that there was pending a revolution that would affect all their practice. Dentistry has gone on committing a great mistake, and its patients have paid the penalty. The great mistake has been the destruction of the dental pulp. The penalty has been the consequences of this procedure.

I shall not endeavor to place any comparative value upon dental infections. That in each case must be the function of the internist, upon whom it will devolve to discover and have destroyed this focus along with others possibly existing. Upon him will fall the responsibility for doing these things in the right sequence, at the right time, and in view of the whole body freehold which he has in charge. For the dentist there

will be sufficient employment in assisting in the diagnosis, doing the necessary surgery in his field, and co-operating in every way with the others involved in the problem. In this connection I cannot refrain from citing one conclusion that has been borne upon me, and that is, that the vaccine therapist in these cases must be the most highly trained physician of them all. He must know intimately these different foci. From some of them he must get material. He must also know that some undiscovered focus does not hold the balance of power against him.

In dental practice there are a number of procedures that need immediate modification. You may not all know that throughout the world all dental colleges teach the devitalization of many teeth used for crowns or abutments of bridges. Our own college of dentistry devitalizes all teeth used for these purposes. This means that thousands of teeth with vital healthy pulps are devitalized. Whatever views may be held as to the extraction of teeth already devitalized, approximately 70 per cent of which are abscessed, it would seem as though it were inexcusable in view of the facts that this ruthless destruction of vital healthy pulps should continue, particularly when there are other and better methods that conserve the vitality of these tissues. I am alluding now to complete systems of crown and bridge work, and in this connection it should be stated that we in Minneapolis, in both medicine and dentistry, should feel a good deal of pride in one matter, for while the opening of our eyes has been due to the work of Dr. Ulrich, setting forth the fact that the infection in the blind dental abscess is hematogenous in origin, and proving the futility of the idea that root-canal technic can prevent this infection, you may not all know that here in Minneapolis has been evolved the answer to this blow to a great branch of dental practice. A complete system of crown and bridge work has been worked out that does not require the removal of the pulp of a single tooth. This system is the work of Dr. Tinker, of Minneapolis, to whom all honor is due. Unless you were a practitioner of dentistry you could have no conception of this marvel of dental excellence, no conception of the difficulties involved in perfecting such a system. It has been said that dentists have been lost in the maze of mechanical marvels. At last we have a mechanical marvel that does not endanger the patient's health or life, a method of restoration of the mouth based on the soundest mechanical principles, filling the cosmetic requirements, and best of all, performing its physiologic function without making the patient's mouth a potential, if not always an actual, menace to him.

In conclusion, I should like to call attention to a branch of dental practice which is forging to the front in the minds of practicing dentists. It has not yet seemed to permeate the minds of those who dictate the policy of our colleges. It is the care of the little child's mouth. Nearly all the things we as dentists are called upon to treat, whether it be the individual tooth or the entire mouth, have their beginning in childhood. Dental caries is largely a disease of childhood. It is a preventable disease. Our students should be taught how to prevent it, not simply how to repair its ravages. Nearly all malocclusions of the teeth we see everywhere are the result of arrest of bone-development in the jaws in early childhood. They can be diagnosed.



and should be treated or prevented by proper supervision of babies and very little children. Colleges should teach these things. They are fundamental.

DR. KREMER (closing): I have nothing special to say in closing, except perhaps to emphasize one or two points raised. One of them that I regard very seriously is this matter of co-operation. While I believe very ardently in vaccine therapy, I do not believe that a dentist has any business to use it himself, because his training is not such as to make him competent to do it. There is an ample field for us, as Dr. Pike stated, in surgery and in that part of the diagnosis which we are specially qualified to make, but if there is anything in addition to this that merits our effort it will lie in the direction of co-operation with the internist and the surgeon. We can be of service to them, and they can be of service to us.

The other point is the matter of the prevention of decay of the teeth. We have always regarded decay as one of the necessary consequences of having a set of teeth. I do not believe that it is. I think the fact has been proven that it is preventable. I think that the ultimate outcome of this agitation will be more thought and more study and effort along the lines of prevention at the only time that it is possible to accomplish it, and that is with the child and its first set of teeth. If you begin there, and apply the methods we already know and have tried out, we have reason to believe that decay of the teeth is just as preventable as any other disease today, and it is a consummation to be devoutly desired that the colleges should take this up and teach it, for therein lies the chief value of the whole subject.

## A COMPLICATED LABOR: REPORT ON A CASE

By JAS. FARRAGE, M. D.

PARK RAPIDS, MINNESOTA

Hydramnios, placenta previa, and contraction-ring are complications which are frequently met with singly in labor, and present a very difficult problem to deal with, but when all three complications are present in the same case, the resulting difficulty of delivery is indeed great and is well illustrated in the following case:

Mrs. F. C. G., wife of a farmer, age twenty-five years, secundipara. Previous labor normal. Patient is a remarkably well developed and healthy woman. Does all her own housework and takes pleasure in outdoor farm work. Urine was quite normal throughout the pregnancy, for the termination of which she set the date of January twenty-fifth. From this date to February fourteenth she had pains more or less severe each day, which after an hour or two passed away. On the night of February fourteenth I was called to the house, which was ten miles out in the country. Upon arrival I found her still having pains, which were not, however, of a bearing down character.

External examination showed an abdomen of unusual size and it was impossible to map out the fetus by manual examination. By vaginal examination I found the external os open to the extent of freely admitting examining finger. The membranes were very tense and full and apparently the head was not engaged. I next tried ballotment and found that it could easily be performed. Having satisfied myself that hydramnios was present and was preventing the head from engaging, I proceeded to rupture the membranes. At once there was a great flow of liquor amnii, over two gallons being passed, which three parts filled a large slop jar. Immediately pains started in good shape and examination showed the cord not prolapsed and the head just beginning to engage.

After waiting for about four hours, during which

time the pains were hard and regular, I again made an examination and found the os was no larger than when I ruptured the membranes. I also discovered that I had to deal with aplacenta previa lateralis, a fact I had not determined at the previous vaginal examination. I then telephoned for an anesthetist and on his arrival I attempted to dilate the os manually. This I found impossible so I resorted to Goodell's steel dilators. Here I found very great resistance and what little dilation I procured caused profuse hemorrhage. Contrary to all text book teaching, I then determined to attempt a podalic version. I found this was not an easy task, as two fingers were all that could be introduced into the os. However, I succeeded in bringing down the foot and here my real trouble began, as the os shut down on each part of the limb from the ankle to the thigh. By using great force I eventually delivered one leg, the left one. After working strenuously for an hour or more I succeeded in getting hold of the second foot, and here I again had the same trouble in delivering the leg from the os closing down on it. By using great force, and after considerable time, the body was delivered to the neck and here the os locked down so tight that it was with the greatest difficulty that I succeeded in getting a finger into the mouth, and then after a long tedious time and by using great force, the head was delivered and the placenta expressed. The child, of course, was dead. The time of delivery from bringing down the first foot was nine hours, and from the rupture of the membranes, fifteen hours. At no time was it possible to use forceps.

For twenty-four hours after delivery there was great pain from a tetanic contraction of the uterus with almost absent lochia. After twenty-four hours this pain passed away and the rest of the puerperium was normal.

In order to overcome any infection that might arise after so much manipulation, I gave the patient a mixed vaccine. Pulse and temperature were normal throughout the puerperium, and she was up the fourteenth day.

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## THE AFFILIATION TANGLE

In this issue of THE JOURNAL-LANCET an attempt is made to present both sides of this important question; the proposal from the Mayo Foundation and the objections thereto. It is very evident that the proposal was made from sincere motives, but it is equally evident that there are many reasonable objections to the proposition.

The first question that has been asked is in reference to the legality of such procedure. Are the Regents of the University of Minnesota given power to affiliate a Public State Institution with any private enterprise? The University derives its support from the State at large, and the people of the State are its owners and have a voice in its upbuilding, yet the people have not been taken into the confidence of the University authorities, and only after the proposal has been discussed in the inner circles and practically settled has the public been informed of the facts. This leads to another important question: Is it wise to undertake by devious and quiet means, by a chosen few, to inaugurate radical changes whereby a precedent is established that may admit affiliation of all departments of the State University with any other private enterprise in the State?

This question may be answered in the affirma-

tive by the Regents, who may claim that public discussion of vital questions is inadvisable as it leads only to confusion. It is admitted that, as a rule, the people as a whole are not informed of details, neither have they any actual personal interest in the conduct of affairs of State. The spirit of publicity and public interest should be the duty of the people, however.

The answer from many quarters may be a negative one and be based upon the assumption that conditions which are radical and vital, and which may affect the future of a State educational institution, are questions the public must decide eventually.

If the proposition before the Regents at the present time were submitted to the medical profession throughout the State it would unquestionably be rejected on the ground that it is unsound in principle and that the acceptance would subordinate the medical school to the Mayo Foundation, thus stunting the development of the school which has heretofore stood so high in the estimation of medical men in all other states. Commendation and praise have been showered upon the University medical school from all quarters. Would it be wise now to change its status by affiliating with a private clinic outside of the campus and thus endanger its future? The point has been raised that if the Mayo Foundation is interested in the progress of the University Medical School why does it not give the income from the proposed investments to the University for research work upon its own campus and thus perpetuate the work and name of the Mayos, and at the same time put the school upon a higher plane and thereby interest other donors to follow their example. University policy and educational standards belong to the University within its own confines and not scattered over a needlessly wide area. Ultimately, through the foresight of wise old Governor Ramsey, lands ceded to the University will bring to the University not less than fifteen millions of dollars and, if properly operated, double or treble this amount.

It is to be noted that aside from the doctor's point of view, many lawyers and business men look upon the proposal as unsound and unsafe in principle. Perhaps this view is superficial, but to the lay mind it is not good business policy to undertake to plunge the State into a delicate and inter-relational combination without long and careful survey of the objections which have been raised. It is conceded that the Mayo Clinic is world renowned and the University Medical

School is known only in this country. Why then, should the one be privileged and the other be lessened in value by contrast?

The Mayo Clinic with the Mayo Foundation behind it may become a tremendous power by its own exertions, and it will perpetuate itself without the assistance of the medical school. Let each do its work and let the rivalry between the two forces stimulate both to greater endeavors. If each remain independent, the University may anticipate an endowment from private bequests just as the Washington University, at St. Louis, has been endowed. If both are combined there is less likelihood of bequests and endowments.

The query arises, too, as to the actual benefits that may come to the University medical student by the proposed affiliation. The Mayo Clinic cannot hope to teach all branches of medicine, neither can it give the same opportunities to its internes that come to internes who have a rotary service in public city or state hospitals. On the other hand, the Mayo Clinic offers special facilities for surgical and pathological advancement and a great service in certain lines of research. The University should offer even greater opportunities, after it builds up some of its departments, in every line and in every specialty.

What the public needs and demands of medical men is a well balanced training, fitting them for work among its people. It should not be the function of the University Medical School to turn out specialists, but general practitioners. When one thinks of the preparedness of the average medical graduate after his final year in a hospital, he finds he is dealing with an unknown quantity which slowly and laboriously blossoms into a safe and sane-minded medical man. Such a man requires years of training and experience that can only be attained by faithful devotion and the cultivation of skill based on personal contact with the individual and his diseases. No medical man can be a successful specialist until he has been ground through the mill of general experience.

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#### THE MINISTERS' AND HEALERS' BILL.

A bill to prevent any kind of healing other than prescribed by medical law was introduced into the legislature a few weeks ago, which, naturally, aroused the greatest antagonism, particularly from the Christian Scientists. An evening was fixed for a public hearing in the house of representatives. Long before the time set for the hearing the hall was packed from carpet to ceil-

ing with an enthusiastic audience of Christian Scientists. When the author of the bill saw the formidable congregation his feet became frost bitten. To forestall a long and telling debate the chairman of the Public Health Committee announced the withdrawal of the bill. This did much to restore good feeling and only one speech was made by a Christian Scientist. He congratulated the committee on its fairness and just consideration of the religious sentiment that is holding a temporary sway over this emotional cult. (The speaker did not use the last line of the above paragraph—the editor is responsible for that.) The speaker had full opportunity to tickle the sentiments of his audience, and he made the most of it as evidenced by frequent applause. It is not likely that any member of the legislature will have the courage to introduce any further bills eliminating this religious body from healing the blind, the deaf, the tuberculous, or those who are unbalanced mentally.

Notwithstanding the claims of the Christian Scientists that all communicable diseases are reported by them to the health officers, it is fair to assume that many cases of preventable diseases will escape their diagnostic scrutiny, and that the health officer will find occasion to declare an embargo by means of red and green cards on many houses.

The next hearing of the evening was a bill to license chiropractors. The hall contained a fair audience and the reading of the proposed bill and the debate upon it furnished an evening of entertainment.

Chiropractor Palmer, son of the man who invented the new practice twenty years ago in Davenport, Iowa, was the chief speaker. He was keen, full of figures and arguments, and ready in reply, and he found a responsive cord in his chiropractic audience. Many local men spoke in favor of the bill and one or two legislators gave incoherent testimony of the cure of their diseases by the new method. Palmer is the head of a school in Iowa where five hundred students are in attendance and he said two lesser schools of doubtful standing in the same city had two hundred and fifty more students. It must be a paying stunt if so many take it up. Some of the speakers displayed a lamentable ignorance of anatomy and their knowledge of the subject was entirely different from Gray and Quain and even the more modern anatomists.

These gentle folk ask only the privilege of *adjusting subluxations of the spine*, spurning the idea of treating many well known and prevent-



able diseases. These diseases are to be left to the ordinary medical man, who, from their statements, know nothing of displacements of the vertebræ.

The amount of illiteracy and ignorance displayed by some of the speakers was painful to the medical mind, but who knows the impression created on the lay mind? It was admitted by Palmer and his followers that they never had seen a human dissection because the laws of Iowa prohibited them from obtaining bodies. It was also admitted that Iowa had not yet legally recognized this form of treatment. Perhaps Minnesota will not. If the committee on Public Health permits the bill to come out on the floor no one knows what may happen, but if this new set of spine adjusters is legalized all medical bills might as well be repealed. The accumulated knowledge of medicine which has been advancing for two thousand years will go on regardless of the flea bites of its antagonists, and some day the federal government will standardize the preliminary qualifications of the students of healing, and will establish a uniform basis for all practitioners.

It will not matter then what form of healing is practiced, if all students are grounded in the essentials of medicine and diagnosis.

## MISCELLANY

### RESOLUTION ADOPTED BY THE RAMSEY COUNTY MEDICAL SOCIETY

TO THE HONORABLE BOARD OF REGENTS OF THE UNIVERSITY OF MINNESOTA:

Whereas, it is understood that your honorable board is considering or is about to consider a proposition presented by Regent W. J. Mayo, the acceptance of which would establish an affiliation or union of the Medical School of the University of Minnesota with the so-called Mayo Foundation for Medical Education and Research, said Foundation to be located in the Mayo Clinic at Rochester, Minn., and,

Whereas, such affiliation or union would grant to said Foundation and through it to the Mayo Clinic the same rights as to credits for work done in the said Mayo Clinic at Rochester and the same power to recommend graduate students for special degrees as are now possessed by the Medical School itself, and,

Whereas, we find that the said Foundation is in practice and operation inseparable from said

Mayo Clinic, which clinic is owned and wholly controlled by the firm of Drs. Mayo, Graham, Plummer, Judd and Balfour, all said members being members of the Mayo family, and,

Whereas, the activities of said Foundation, the direct expenditure of its funds and the employment of teachers under the proposed affiliation are almost wholly under the control of said clinic, and,

Whereas, the work done under said Foundation would be so blended with the activities of the said firm or pay clinic as to render any distinction practically impossible.

Therefore, be it resolved that, we, the members of the Ramsey County Medical Society, emphatically protest against the delegation of such powers and the bestowal of the name, authority and support of the University of Minnesota, such as would be involved in the acceptance of this proposition.

It is evident that in perfecting any affiliation with the proposed Foundation, the University conveys an incalculable gift of power, prestige and ultimate financial benefit such as is unprecedented in the educational history of our nation.

Furthermore, it would violate the sound fundamental principle which demands that a state university should neither confer a special privilege nor lay itself open to the charge of undue preference or favoritism. We can perceive in the proposition absolutely no gift of money to the University itself and no such increased prestige as would in any considerable measure compensate for the violation of precedent and principle, the admitted check to the normal growth of the Medical School and damage to its *morale* no less than the creation of a widespread and, in our opinion, wholly just resentment throughout the State.

The so-called Foundation is, in effect, an endowment of the clinic which it would serve to perpetuate. When employed as a means of union with the State University it becomes a danger and a menace to the best interests of medical education in Minnesota and the nation.

It would largely remove from this accessible center of population and from the institution itself what should become one of its most important and progressive departments.

Moved by feelings of loyalty to the institution, we protest against a policy of separation and the arrest of normal self-development which, in our opinion, would impair the usefulness of a great university with a splendid history and a brilliant future.

## RESOLUTION ADOPTED BY THE HENNEPIN COUNTY MEDICAL SOCIETY

TO THE HONORABLE BOARD OF REGENTS OF THE UNIVERSITY OF MINNESOTA:

Whereas, a proposition has been submitted to the University of Minnesota by one of its regents, Dr. Wm. J. Mayo, that the "Mayo Foundation for Medical Education and Research" of the Mayo Clinic at Rochester be affiliated with the Medical School of the said University of Minnesota, and,

Whereas, this Foundation is hedged round with such restrictions in its administration, that the great University of Minnesota would be grievously hampered in its freedom of action as to its control of medical education in the State, and to an extent be under the domination of a private and commercial corporation, and to *that extent* lower its dignity, and

Whereas, without the due deliberation and consideration which so vital and radical a change of policy demanded, the faculty of the medical school, by a small majority and in the face of an earnest and vigorous protest from the University, accepted such proposition, and,

Whereas, the proposition is shortly to come before your Honorable Body for final action;

Therefore, be it resolved, that we, the members of the Hennepin County Medical Society, do hereby earnestly and emphatically protest to Your Honorable Body against the acceptance of or affiliation with any and every such fund, gift or foundation, restricted as this one is, which shall hamper the free action of the University, or tend to lower its prestige or impair its dignity.

Our reasons for such protest, and which we submit to your earnest consideration, are as follows:

(1) This Foundation is *not* a *free* gift to be used solely and entirely for the development of scientific medical education and research; nor is it to be administered and directed by a disinterested body of men nominated either by the executive of the University or by that of the State. On the contrary it is proposed that its administration and direction shall lie with a board of six trustees only one of whom shall represent the State, the other five being members of the donating private corporation. Thus it will come about that the University of the great State of Minnesota, perpetual in a sense and destined, if it may be judged by its past, to a great future, will be hampered in *one* of its schools, possibly the most important one to the commonwealth, by

a private financial institution, successful, large and powerful to be sure at present, but destined, sooner or later, as all experience of similar institutions shows, to deterioration. This is not as it should be.

(2) It is ordained that a certain portion of the post-graduate and research work shall be carried out at the private clinic at Rochester, essentially a pay clinic and subject, consciously or unconsciously to the commercial spirit, far removed from the University Campus and the influence of the university spirit. The character of the teaching and the personnel of the teaching staff will be under the control of the above board of trustees nominated by the Mayo Clinic and *not* under that of the University. In what way, may it be asked, can such an affiliation redound to the credit or fame of our Medical College, of which, up to now, we have all been so justly proud? To the disinterested well-wisher of the University it would seem to lead to only one result, the aggrandizement of this private corporation at the expense of the usefulness and dignity of our University Medical School.

(3) Nor can such an affiliation redound to the advantage of the advanced student who seeks scientific truth for truth's sake. It cannot for a moment be admitted or conceived that under such environment as obtains at any private clinic that the student can attain to the highest scientific and altruistic ideals.

Lastly, the necessity for such an affiliation because of the lack of material for clinical or research work does not exist. In such a community as surrounds the State University with its three-quarters of a million of people which needs the services of a thousand physicians to properly care for its sick, there must necessarily be a superabundance of available clinical material; if a dearth *apparently* exists the fault lies, not in the community, but in the lack of support of the Medical School and University Hospital by the State.

## REPORTS OF SOCIETIES

### RAMSEY COUNTY SOCIETY.

The meeting of the Society held February 22nd was unusually well attended. The program consisted of the demonstration by Dr. F. J. Savage of a specimen from a case of missed abortion in a mother of 16 children; and papers were read as follows:

"Early Practice of Medicine in St. Paul," (being the address of the retiring president) by Dr. J. M. Armstrong.

"A Further Consideration of Early Diagnosis in Pulmonary Tuberculosis," by Drs. E. T. F. Richards, St. Paul, and F. S. Bissell, Minneapolis.

Routine business was transacted and after some discussion, all being in favor of adoption, a resolution, which will be found on another page of this issue, was unanimously adopted.

C. E. SMITH, Jr., Secretary.

### HENNEPIN COUNTY SOCIETY

The regular monthly meeting of the Society was held in the library rooms Monday, March 1. One hundred and twenty were present.

Dr. Sam Sweitzer presented a case of epithelioma of the cheek, treated with radium. The following papers were read:

"Microscopic Appearance of Cancer in Different Parts of the Body," by Dr. A. W. Abbott.

"Cancer of the Uterus," by Dr. Stephen H. Baxter.

"Cancer of the Genito-urinary System," by Dr. F. R. Wright.

"The Treatment of Cancer, Otherwise Than Surgical," by Dr. John Butler.

Drs. Chas. F. McCuster, D. F. Robbins, Walter J. Kremer, and Alexander Josewick were elected to membership.

Drs. Geo. M. Haywood, John W. Lee, Chas. A. Erdmann, F. J. Souba, and L. J. Coria were proposed for membership.

After an extended discussion a resolution, which will be found on another page of this issue, was adopted.

S. R. MAXEINER, Secretary.

### BOOK NOTICES

INTERNATIONAL CLINICS. Edited by Henry M. Cattell, M. D. Published by J. B. Lippincott Co., Philadelphia. Vol. 4 of the 24th Series. Price, \$2.00.

This book contains such a wealth of good things, being exceptionally valuable from cover to cover, that it is hard to select any one of thirty articles, each from the hand of a leading authority; but especially pertinent is the one on the Therapeutic Value of Water in Pneumonia, by Simon Baruch, M. D.—its sixteen pages of type and illustrations are full of most concisely stated and practical important truths, clearly set forth in an unusually attractive style.

The visit to the Mayo Clinic at Rochester, Minnesota,

by P. G. Skillern, Jr., M. D., will serve to recall pleasant and profitable experiences to many, and to clearly introduce those who have this great treat yet ahead of them to some of the many points of interest in this unique clinic.

Professor Max Brödel's article on Medical Illustration might well be in the hands of every art student in our schools and universities. It is just the clear, calm, and thoroughly scientific view of the situation that a man capable of such illustrative work would be expected to write. It is a joy to read so finished, so satisfactory an essay.

THE TONSILS. By Henry A. Barnes, Harvard Medical School.

St. Louis: C. V. Mosby Company. Price, \$3.00.

Every man practicing medicine and surgery will find this book just what he wants. It is very interesting, not in the least tedious in any chapter, and so well written that it is a great pleasure to review it.

The chapter on surgery does not meet with the reviewer's approval, but no two men can yet agree on tonsil surgery. "When we all come to my way" no doubt we shall agree.

—CAMPBELL.

### NEWS ITEMS

Dr. J. J. Deertz has returned to Ashton, S. D., from Cora, Wyo.

Hutchinson hopes to have a hospital of its own in the near future.

The citizens of Effington, S. D., are to build a hospital in that town.

Dr. L. C. Jurgens, of Gregory, S. D., has located in Rapid City, S. D.

Dr. William Goldsworthy, of Duluth, died at his home the first of March.

Dr. R. I. Hubert has resigned from the St. Paul city health department.

Dr. G. E. Kirmse, of Minneapolis, has established a practice in St. Louis, Mo.

Kenmare, N. D., is to have a new hospital, as the present one has become inadequate.

Dr. Goldie Zimmerman has left Aberdeen, S. D., and settled in Sioux Falls, S. D.

The United Church Hospitals association is erecting a \$75,000 hospital in Minneapolis.

Dr. Fred Olson, who has spent some time in the Twin Cities, has returned to Rochester.

Dr. Joseph Moses, of St. Paul, has formed a partnership with Dr. D. E. McBroom, of Adams.

Dr. Richard Finlay, a pioneer physician of Centerville, S. D., died of heart failure the last of February.



Dr. J. T. Wingate, of Geddes, S. D., was married to Miss Bertha Crane, of Platte, S. D., the last of February.

Dr. T. W. Hovorka, of Glencoe, has sold his practice to Dr. A. D. Corniea, a graduate of the University of Minnesota.

The so-called "Quiet Zone Act" has been passed by the Minneapolis City Council, and is calling forth much commendation.

Dr. P. J. Waldron, a resident of Rapid City, S. D., for over twenty years, died of pneumonia at his home the latter part of February.

The question of a "milk law" for Minnesota is still undecided. Several bills have been proposed, but none seem to fill the requirements.

Dr. C. Ulysses Moore, formerly of Carthage, S. D., is at the Peter Brigham Hospital, of the Harvard Medical School, for the year, making a study of Pediatrics.

The American Association of Immunologists will hold its annual meeting in Washington, D. C., May 10, 1915. This society was organized in Minneapolis, June 19, 1913.

Dr. E. W. Jones, formerly of Mt. Vernon, S. D., has just finished a year's internship in the Post Graduate Hospital, Chicago, and has located in Mitchell, S. D., for the exclusive practice of Surgery and Gynecology.

A bill has been presented to the State Legislature of Minnesota, which, if passed, will prohibit the sale of snuff in this State. North Dakota now has a law against the sale of this compound.

The South Dakota Legislature turned down Watertown's request for an appropriation of \$20,000 as funds to prepare the grounds owned by the state in that city for the Northern Hospital for the Insane.

The State Sanatorium for tubercular patients, at Walker, has been pronounced in excellent condition in a report to the State Board of Control made by Dr. T. T. Warham, county physician of Hennepin county.

Dr. J. F. Anderson, of the Hygienic Bureau, Washington, D. C., will deliver the annual address before the Minnesota Pathological Society, Tuesday, March 30th, at 8:00 p. m., in the Institute of Anatomy on the University Campus.

#### EQUIPMENT FOR SALE

Full equipment of eye, ear, nose and throat instruments, trial case, Pyncheon cabinet (golden oak finish), specialist chair, stool with receptacle, etc. Property of late Dr. C. B. Powell, Bemidji, Minn. Address Mrs. C. B. Powell, Bemidji, Minn.

#### PHYSICIAN WANTED

To locate in a thriving North Dakota town. For full information correspond with Andrew Erickson, Makote, N. D.

#### PRACTICE FOR SALE

An established practice in a town of 2,000 for sale for the price of the office outfit. If you mean business, write at once. Address 205, care of this office.

#### SANITARIUM FOR SALE

A new, strictly modern, 50-bed sanitarium with three acres of land on a beautiful lake, located near the Twin Cities, for sale cheap. Address 206, care of this office.

#### PARTNER WANTED

In large contract mining practice on Iron Range, Minnesota. Own modern hospital and best contracts; mines good for 75 years. Cash collections over \$10,000 annually. Must be good all-around physician and surgeon. Address 209, care this office.

#### ASSISTANT SUPERINTENDENT WANTED FOR A LARGE GENERAL HOSPITAL

To a graduate of medicine, wishing to secure a thorough training in institutional work, this is an exceptional opportunity. To avoid unnecessary correspondence, answer in own handwriting, giving age, college, experience, whether married or single, and other necessary particulars. Correspondence confidential if requested. Address 208, care of this office.

#### FOR SALE

To a man with surgical ability, one-half interest in my private practice and well-equipped hospital, located in a live up-to-date county-seat town in Minnesota; population 2,500; two railroads; good schools and roads; good fees. This is an excellent opportunity to get into a place with a good future. Price, \$5,000 for one-half interest in hospital building, equipment, office fixtures, and practice; \$2,500 cash. Don't write unless you mean business and have the cash. Address 202 care of this office.

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Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-eighth annual session opens September 28, 1914, and closes June 5, 1915. New Orleans Polyclinic, P. O. Drawer 261, Post-graduate Medical Dept., Tulane University of Louisiana.

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	0															
Albert Lea	4,500	5,192	6				1										1	
Alexandria	3,681	3,001	2														1	
Anoka	3,769	3,972	5															
Austin	4,474	6,964	10			5												
Barnesville	1,326	1,353	*															
Bemidji	2,383	5,099	6			2											1	
Benson	1,525	1,673	3			1									1			
Blue Earth	2,900	2,313	1															
Brainerd	7,524	8,526	11	1		1												
Breckenridge	1,282	1,540	1								2					1	3	
Canby	1,100	1,528	2															
Cannon Falls	1,239	1,385	1	1											1			
Chaska	2,165	2,050	3			1												
Chatfield	1,426	1,226	2															
Cloquet	3,074	7,031	3	1				1										
Crookston	5,359	7,559	6								1						2	
Dawson	962	1,318	3															
Detroit	2,060	2,807	3			2												
Duluth	52,968	78,466	60	7		12												
East Grand Forks	2,077	2,533	2															
Ely	3,572	3,572	3															
Eveleth	2,752	7,036	4			1												
Fairmont	3,440	2,958	2															
Faribault	7,868	9,001	12	1		3										1	1	
Fergus Falls	6,072	6,887	9	1		3											3	
Glencoe	1,788	1,788	3															
Glenwood	1,116	2,161	4															
Granite Falls	1,454	1,454	1															
Hastings	3,811	3,983	1															
Hutchinson	2,495	2,368	2			1												
International Falls		1,487	6			1											1	
Jordan	1,270	1,151	3	1														
Lake City	3,142	3,142	5	1		1												
Le Sueur	1,937	1,755	0															
Little Falls	5,774	6,078	6															
Luverne	2,223	2,540	3								2					1		1
Madison	1,336	1,811	2															
Mankato	10,559	10,365	10															
Marshall	2,088	2,152	2															
Melrose	2,591	2,591	1															
Minneapolis	202,718	301,408	313	28	11	35	13	1			1				5	12	29	1
Montevideo	2,146	3,056	4		1													14
Montgomery	979	1,267	0															1
Moorhead	3,730	4,840	7		1	1											1	
Morris	1,934	1,685	2			1	1											1
New Prague	1,228	1,551	1															
New Ulm	5,403	5,643	10	1														
Northfield	3,210	3,215	4															1
Ortonville	1,247	1,774	3	1													2	
Owatonna	5,561	5,658	8			1	1									1		1
Pipestone	2,536	2,475	1															
Red Lake Falls	1,666	1,666	1													1		
Red Wing	7,525	9,048	5														1	
Redwood Falls	1,661	1,666	0															
Renville	1,075	1,182	0															
Rochester	6,843	7,844	23	1													4	
Rushford	1,100	1,011	1														1	
St. Charles	1,304	1,159	2															
St. Cloud	8,663	10,600	13	3	1	2											2	
St. James	2,102	2,102	2														1	
St. Paul	163,632	214,744	191	17	4	27	3	1							2	6	17	9
St. Peter	4,302	4,176	6															
Sauk Centre	2,154	2,154	3		1												1	2
Shakopee	2,046	2,302	1															
Sleepy Eye	2,046	2,247	4			1												
South St. Paul	2,322	4,510	4			1											1	
Staples	1,504	2,558	1															
Stillwater	12,318	10,198	13	2		1											2	1
Thief River Falls	1,819	2,174	10	1		3	2								1			1
Tower	1,111	1,111	1														1	
Tracy	1,911	1,826	0															
Two Harbors	3,278	4,990	5			1											1	
Virginia	2,962	10,473	6			3												
Wabasha	2,622	2,622	7														2	
Warren	1,276	1,613	1															
Waseca	3,103	3,054	4														1	
Waterville	1,260	1,273	0															2
West St. Paul	1,830	2,660	0															
Willmar	3,409	4,135	4			1												
Winona	19,714	18,583	21			2		2	1								4	3
Winthrop	813	1,043	1															
Worthington	2,386	2,385	3															

## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	1															
Aitkin	1,719	1,633	0															
Akeley			0															
Appleton	1,184	1,221	4							1								
Belle Plaine	1,121	1,204	2	1														
Biwabik		1,690	1															1
Bovey		1,377	1															1
Browns Valley	721	1,058	0															
Buffalo	1,040	1,227	0															
Caledonia	1,175	1,372	0															
Cass Lake	546	2,011	2															
Chisholm		7,684	6		1	2												
Coleraine		1,613	0															
Delano	967	1,031	1															
Farmington	733	1,024	0															
Fosston	864	1,055	0															
Frazee	1,000	1,645	4			1												1
Grand Rapids	1,428	2,239	1															
Hibbing	2,481	8,832	14															
Jackson	1,756	1,907	1															
Janesville	1,254	1,173	0															
Kenyon	1,202	1,237	0															
Lake Crystal	1,215	1,038	1															
Litchfield	2,280	2,333	0															
Long Prairie	1,385	1,250	0															
Madelia	1,272	1,273	0															
Milaca	1,204	1,102	0															
Mountain Lake	959	1,081	2	1														
Nashwauk		2,080	0															
North Mankato	939	1,279	0															
North St. Paul	1,110	1,404	2														1	
Osakis	917	1,013	0															
Park Rapids	1,313	1,850	3														1	
Pelican Rapids	1,033	1,019	0															
Perham	1,182	1,376	3															
Pine City	993	1,258	2			1												
Plainview	1,038	1,175	1															
Preston	1,278	1,193	1															
Princeton	1,319	1,555	4			1											1	
St. Louis Park	1,325	1,743	1				1											
Sandstone	1,189	1,818	1															1
Sauk Rapids	1,391	1,745	4															
South Stillwater	1,422	1,343	2			1												
Springfield	1,511	1,482	0															
Spring Valley	1,770	1,817	3	1														
Wadena	1,520	1,820	3															
Wells	2,017	1,755	0															
West Minneapolis	2,250	3,022	3	1		1											1	
Wheaton	1,132	1,300	2			1												
White Bear Lake	1,288	1,505	1															
Windom	1,944	1,749	1															
Winnebago City	1,816	2,555	1															
Zumbrota	1,119	1,138	3			1												
STATE INSTITUTIONS																		
Anoka, Asylum			8	2														
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			7		1	1												
Fergus Falls, Hospital for Insane			13	4														1
Hastings, Asylum			2	1														
Minneapolis, Soldiers' Home			3															
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			14	1		1												
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			10	2													1	
St. Cloud, State Reformatory			0															
Stillwater, State Prison			0															
OTHER PARTS OF STATE			750	44	8	97	5	10	1		9			2	33	59	3	44
Total for state			1780	126	30	224	29	14	1	1	15	0	0	14	61	153	9	86

\*No report received. Registrar not doing his duty.

143 stillbirths not included in above totals.



# Quaker Oats

## The Luscious Form of Vim-Food

This is the finest thing known in an oat food. We select for this brand just the big, plump grains. All the puny, starved grains are discarded.

A bushel of the choicest oats yields but ten pounds of Quaker.

These rich grains are treated by dry heat, then by steam heat, then rolled into luscious flakes.

---

It so excels in quality and flavor that this brand dominates the world. In a hundred nations it stands first among oat foods. It is the ruling brand in the British Isles, in the very home of Scotch oats.

Yet it sells in America at no extra price—at 10 cents per package—one-half cent per dish.

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You wish to make oat food inviting. You want children to love it, to eat an abundance. This super-quality accomplishes those things as no other oat food will.

You will find that the costliest imported oats do not compare with Quaker.

Large Package	-	-	-	-	25c
Regular Package	-	-	-	-	10c

Except in far West and South

## The Quaker Oats Company

Chicago

## PUBLISHER'S DEPARTMENT

### OCONOMOWOC SANITARIUM

The above sanitarium is located in a beautiful grove and surrounded by elegant scenery. The building is of brick, steam heated, and situated but a short distance from the railway stations. It is open every day in the year and Dr. S. B. Ackley, the superintendent, takes personal charge of each patient on his arrival, giving him medical advice and looking after his comfort in every detail. Write him for booklet.

### WM. PAINTER CO., MINNEAPOLIS

This firm is the only one in Minneapolis which carries a full line of x-ray machines and Paragon plates, their stock being large and complete. If you are in need of anything in the line of surgical goods, hospital supplies, etc., you will find it at this store, instead of ordering from outside the city and then waiting for days for its arrival, call on or write them for your next supply, as they guarantee satisfaction both in price and prompt service.

### THE METROPOLITAN MILK COMPANY

The medical profession of the Twin Cities does not hesitate to recommend the milk of this company for the use of patients, as it is the safest milk obtainable, perfectly pasteurized and uniform in quality.

The plant is modern in every respect; the milk and cream being handled with a degree of cleanliness unsurpassed by any other company. The milk problem has become a very serious one in all cities, and no expense is being spared by this company in giving the public rich, clean, healthful milk and cream.

### FIRST NATIONAL BANK

Some time this month, this bank will occupy its new banking offices in the twenty-story "First National-Soo Line Building," corner of Marquette Avenue and Fifth Street. These offices will be the largest and best finished and furnished, with all the latest devices in bank furniture, making it the most attractive banking room in the Northwest. For over 50 years this bank has served the people of the Northwest. No account, large or small, but what receives the same courteous treatment. The resources are now over \$30,000,000 and constantly growing.

### DR. ULRICH'S LABORATORY

Dr. Henry L. Ulrich, head of the Minneapolis Clinical Laboratory, is widely known over the Northwest as a man thoroughly versed in modern laboratory work and of large practical experience in hospital and consultatory work. The Doctor has given much of his time for many years in presenting papers before state, district and county medical societies, that he might show the physicians of the Northwest the great value of the laboratory in the prevention and cure of diseases. Full information will be sent on application. Address Minneapolis Clinical Laboratory, Minneapolis.

### SHARP & SMITH, CHICAGO

The attention of the physicians of the Northwest is called to the advertisement of the above firm, who are not only the largest manufacturers of surgical goods in this country, but are among the leading importers of

goods that are required by physicians. They are perfectly responsible and any orders sent them will always receive their personal attention with guaranteed prices. Their catalog will be sent you on application and any information that you may desire will be cheerfully given. The company are advertising a line of special bone instruments, which are giving great satisfaction.

### WHITE SULPHUR SPRINGS

Our Northwestern people are visiting the above springs in large numbers this season. No other place in this country presents such a climate—such waters, grounds, scenery and hotel accommodations—as the White Sulphur Springs in the mountains of West Virginia. Dr. George D. Kahlo, the medical director in charge, is well known in all parts of the country. For the past two years he has given a course of lectures on Balneology and Hydrotherapy at the Johns Hopkins University. The doctor would be pleased to give any detailed information to any person who desires to spend a few weeks at the Springs. Read their advertisement in this issue of the JOURNAL-LANCET.

### MUDLAVIA, KRAMER, IND.

For over thirty years the doors of Mudlavia have never been closed, and through them have passed thousands who came with distorted bodies but passed out with restored health. Mudlavia is no experiment. It has been tested time and time again, and has received the approval of all those who have obtained results. This treatment is a system originated upon scientific and practical lines; a distinctive treatment and given only at Mudlavia, Kramer, Ind. Dr. George F. Butler is medical director and is well known at home and abroad for his high professional standing and for the many books he has written on Public Health and Sex Hygiene. The doctor's latest book, "How to Live," is just off the press, and you should read it, as it gives instruction on all subjects tending to uplift mankind, and to make people healthier and happier, and life better worth the living.

### THE SWEDISH HOSPITAL, MINNEAPOLIS

The board of trustees of the above hospital gave a reception last month to the public that they might inspect the new addition which has recently been completed. The building is 67x65 feet, four stories high above the basement, of concrete construction, and entirely fire-proof. The basement contains an assembly hall for the nurses, training school, and chapel for hospital and household. An electric elevator runs from the basement to all the floors. The first, second, and third floors are identical in construction and arrangement. Two of the floors have large sun parlors which extend the entire depth of the building, being screened, glazed, and heated, as well as facing the east and south, making them a very enjoyable spot for the patients. The fourth floor is used as a maternity department, having a sterilizing room, obstetrician's lavatory, baby's bath, and nursery, also the kitchen, which is a model of compactness, convenience, and sanitation. The ventilation of the building is perfect. The furnishings are all of special design, many innovations being introduced, which, being based on years of careful observation, will meet the hearty approval of both patient and physician. The full capacity of the hospital at the present time is 160 beds. The officers are Mr. E. G. Dahl, President, Dr. Edw. Moren, Chief of Staff, and Mr. G. W. Olson, Superintendent.

# THE JOURNAL- LANCET

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## A REPORT OF TYPHOID PROPHYLACTIC VACCINATION IN TWO THOUSAND CASES, WITH STUDIES OF THE WIDAL REACTION\*

By C. C. BURLINGAME, M. D.

FERGUS FALLS, MINNESOTA

When the matter of making this report to the Association was first suggested I promised myself ample time for the preparation of the paper, and never to again be forced to apologize for a hastily drawn report. Good resolutions were of no avail, and I find myself asking indulgence because of lack of time.

The history of immunization against typhoid by the use of the vaccines, its success in the army in the hands of Major Russell, etc., are already far too familiar to the profession at large to bear even touching upon. This report, then, will deal solely with the work done at the Fergus Falls State Hospital for the Insane, in collaboration with the workers of the State Board of Health Laboratories, for the patients and employees of that institution, together with an explanation of the effort made to contribute to the knowledge on the subject by studies of the blood-changes produced by the typhoid vaccine.

Typhoid we have always had with us. It was in part the natural result of drawing patients constantly from a large district where the disease is only too common. Prompt isolation of any already infected, careful inspection of the milk and water supply, and attention to all matters of sanitation failed to eliminate the disease. As one source of the infection, in our own minds, we were convinced of the presence in our population of typhoid-carriers, who were a constant menace.

The first observation of Eaton and Watters, of Boston, in the use of typhoid vaccine as a therapeutic agent in the treatment of those suffering with the disease, promised to rob this disease of many of its terrors; but, unfortunately, their later reports, as well as our own experience, failed to prove the measure any more reliable than the older and more established lines of treatment; and the occurrence of typhoid as an accompaniment of mental disease continued ever to be a source of considerable worry. I believe all who are familiar with the difficulties incident to handling the disturbed insane can appreciate our feeling. Clearly, prophylactic measures offered the greatest opportunity in fighting this disease. But it was only after careful consideration that we decided, in the fall of 1912, to set a rather new precedent among the hospitals for the insane by immunizing the entire institution. We had not progressed far when the magnitude of the task became impressed upon us, and we looked for assistance from another branch of the State service. We got in touch with the State Board of Health, and there found enthusiastic collaborators with whom we have carried on this work. I wish to here acknowledge the great assistance which has been furnished from this quarter unstintingly and without reserve.

A rather extensive study of the problem was agreed upon whereby we should carry out the investigation under three heads: first, protect the patients against the disease by the use of prophylactic vaccination, and determine as far as

\*Read at the 46th annual meeting of the Minnesota State Medical Association, St. Paul, October 1 and 2, 1914.



possible the reliability and duration of this immunity; second, investigate further into the possible sources of infection and means of elimination of the same; third, make a study of the blood-changes following the administration of typhoid vaccine, and the rapidity with which the Widal occurred, and its duration. As none of these lines of investigation have been completed, this report must be regarded as a preliminary one.

By January, 1913, we were fully prepared, and started the work on an extensive scale. Since that time some two thousand patients and employees have been immunized, and in the neighborhood of eight thousand Widal examinations made. Only patients who were senile, in poor physical condition, tuberculous or suffering from acute illness, were exempt; and the remainder were vaccinated at the rate of about two hundred a month during 1913, until some fourteen hundred persons had received treatment. During the past summer six hundred additional persons, who had been added to our population since the vaccinations of the preceding year, were treated. It was impossible to immunize all at once; and, therefore, we have always had a number who were unprotected. As will be shown later, it has been this unprotected class that furnished one of the most conclusive arguments in favor of immunization.

The mode of procedure was to first take a sample of the blood for examination before any vaccine was given. Any patients who showed at this time a positive or atypical Widal reaction, were listed for future examination of the urine and feces. It was hoped we might locate typhoid-carriers in this way. A first injection was given of a half billion bacteria, and a second and third of one billion bacteria each. The first series of 613 cases were given injections at intervals of seven days, and most of the remaining received their inoculations ten days apart. A Widal was taken after each injection in the majority of the cases. Following this, other blood-examinations were made at varying intervals, as, at the end of three months, six months, and one year after the first injection.

The work included 5,672 injections, without severe constitutional reaction and without infection or accident of any kind. It is noteworthy that after several hundred patients had received treatment, an opportunity was given to the employees to voluntarily receive protection. The employees observed the comparative lack of discomfort entailed by vaccination among the insane and the decided benefit derived, with the

result that 192, or nearly the entire force at that time, asked for immunization.

As previously mentioned, we were compelled to do the work gradually, a hundred or two at a time. This meant a constantly increasing number of those immunized with a gradually decreasing percentage of those unprotected, but left some unvaccinated at all times. Since the beginning of vaccination in January, 1913, we have had a total of 16 cases of typhoid fever among those unvaccinated, but not a single occurrence of the disease among those who have received immunization. I shall not go into the details of our study of those individual cases further than to say that they received the same food as those vaccinated; the water and milk supply was the same for these cases developing typhoid as for those immunized; their associates were the same; and, in brief, they lived under exactly the same conditions as those who had been vaccinated; and yet the unvaccinated alone acquired the disease. Certainly, under the circumstances, we should assume the exposure to typhoid to have been identical for the immunized and for the others. The disease, then, developing in 16, solely among those unprotected, must be significant. While it is a misfortune to have had any typhoid, yet these cases, at least, served to show the disease still existed in the institution, and demonstrated the value of vaccination as a preventive measure.

In passing, I might emphasize the need of prophylaxis by saying 4 of the 16, or 25 per cent of the cases, had fatal terminations. The reliability, then, of prophylactic vaccination seemed demonstrated beyond a doubt; and as for the duration of the immunity, suffice it to say that some have already passed twenty months, and no case of typhoid has yet occurred among them.

The second step in our investigation,—that is, sources of infection and means of relief,—is proving to be no less interesting than the work of immunizing. Much to our surprise, of the first 1,400 cases having blood-examinations before any administration of vaccine, 46 had a positive or atypical Widal, although all were clinically well at the time. An effort was then made to determine, if possible, whether or not any of these 46 cases had suffered from typhoid at some time in the past. Because of their mental conditions, most of the patients could not be relied upon for their own personal history, and we depended solely upon their records, obtained after admission to the institution, which gave the following results:

No history of suspicious illness.....	29
Definite history of typhoid.....	9
History of indefinite intestinal disturbance....	4
History of indefinite fever .....	4

An examination of urine and feces for typhoid bacilli was next undertaken; and this work is being carried on at present. The first series of these examinations were not satisfactory on account of cultural defects; and so far in but one case have typhoid bacilli been recovered from the excreta. None of the other examinations are complete; and it will be some time before the significance of the Widal in these cases can be demonstrated. Before the question of relief from the sources of infection can be fully taken up, we shall have to complete the work of locating carriers, but, in the meantime, we are much interested in the recommendations being given to carriers, that they altruistically submit themselves to the surgeon, in order to render themselves innocuous.

In considering the third portion of our study, I shall mention only the 1,942 cases from whom we were able to obtain one or more Widal examinations. From the 1,942 we obtained four or more Widal examinations in 1,116 cases. The remainder submitted to less than four examinations of the blood for one reason or another, and, therefore, had no examination after the three injections had been completed. Some of these remaining 826 had but one injection, others had but two, and still others had the full three, but saw no advantage to themselves in having a blood-examination after the vaccination had been completed. And then, again, after a thousand or more had been studied, it was decided to discontinue the examination after the second and third injection if the Widal had already become positive.

As evidencing probably most accurately the effect of vaccination in producing a positive Widal, the results in the first 1,400 cases may be considered separately from the rest. From this number, 1,259 satisfactory Widal examinations were obtained a week or ten days after the first inoculation. The results, when tabulated, showed 311, or 24.7 per cent, had been changed from negative, before inoculation, to positive, afterwards, and 80, or 6.3 per cent, showed an atypical Widal reaction. If the presence of a Widal thus produced can be considered as a sign of immunity against typhoid, 30 per cent were immunized by one dose. The presence of these positive blood-signs was not taken, however, as an indication for failing to give the second and

third treatment. From the 908 remaining negative after the first inoculation, 861 satisfactory Widal's were secured, with the result that 53.3 per cent of these remaining were found positive and 18 per cent atypical in reaction. Of this group, but 17 remained negative a week or ten days after the third injection. From them, 501 examinations of the blood were made after the expiration of six months. From this number, which had been previously rendered positive by vaccination, 313, or 62.4 per cent, had returned to negative. At the expiration of one year, examination of 758 cases, which had been previously positive, showed 607, or 80.1 per cent, negative, 55, or 7.3 per cent, atypical, and only 96, or 12.6 per cent, still positive.

From the foregoing it would seem the positive Widal is rather transitory; and while its presence may indicate immunity, its absence cannot be regarded as showing the passing of such immunity. During the blood-examinations it was not at all uncommon to find the Widal positive one week, the next negative, and again positive at the third examination, and so forth. Even after making reasonable allowance for errors of various kinds, the variability of the reaction must be recognized. In some cases, eight and ten Widal's were made, but it was very seldom we found the reaction stayed consistently positive. Although the Widal showed great variability, but a very small percentage of the cases failed to show its presence at some one of the examinations. Of the 1,116 cases on which a Widal was done after each injection, but 11.7 per cent failed to show any reaction whatever. It was in the study of this 11.7 per cent, or 131 cases, remaining persistently negative that a very interesting part of the study developed. It was discovered that 101, or 16.6 per cent of all of the men insane, had remained negative, while but 12, or 2.8 per cent, of the women failed to show blood-changes. We then tried to explain to ourselves why the women should react so much more satisfactorily than the men. After looking up each case we found 90 of the 101 had been vaccinated by the same physician, and through a misunderstanding he had failed to use care in vaccinating his cases regularly at ten-day intervals. Many he had allowed to run eleven, twelve, or thirteen days without using care to have the interval between doses the same. Whether or not this irregularity of vaccinations had anything to do with this large percentage of failures, the fact remains that he had 70 failures among the 205 vaccinated by him in this manner, while the entire remaining 911



had but 61 failures. This meant 34.1 per cent failures among the irregularly vaccinated against 6.7 per cent failing to show blood-changes when vaccinated carefully at regular intervals. Of the entire 1,942 cases, which includes some who have had but one attempt to examine the blood, 86 per cent showed blood-changes the result of vaccinations.

Another very interesting comparison was between the seven-day and ten-day intervals. Six hundred and thirteen patients were vaccinated at seven-day intervals, and the remainder given their inoculations ten days apart. The results were as follows: Seven days after the first inoculation 4.7 per cent positive, 7.8 per cent atypical, and 87.5 per cent negative. Ten days after the first inoculation 29.2 per cent positive as against the 4.7 per cent; 10.1 per cent atypical as against the 7.8 per cent; and only 60.7 per cent negative as against the 87.5 per cent negative. The Widal's taken after the second injection showed 78.9 per cent positive after the ten-day interval, as compared with 47.4 per cent after the seven-day interval. While the evidence seems in favor of the ten-day interval, yet, as far as the percentage of those ultimately showing a positive or atypical reaction is concerned, it is practically the same under both methods. It remains to be seen whether any higher percentage of those vaccinated at ten-day periods will be found positive after one year than those treated every seven days.

Before summarizing, I would like merely to mention the claims which have been made, that the administration of prophylactic vaccine has aggravated tubercular conditions, and that it tends to increase the susceptibility to this disease. If a bare statement of fact, without, on this occasion, taking time to present substantiating proofs, is permissible, it may be said, although we have observed closely, we have failed to note anything which would tend to confirm this observation.

#### CONCLUSIONS

Prophylactic vaccination against typhoid has seemed to furnish absolute protection to about two thousand persons, some of whom have undoubtedly been exposed. It has failed to cause much discomfort, and has been accompanied by no accident of any kind.

The administration of vaccine at regular intervals produces a positive or atypical Widal, usually within thirty days in about 94 per cent of the cases. This blood-reaction is quite variable, and becomes negative with comparative rapidity.

Although this reaction has disappeared in the majority of cases, clinical evidence indicates that the immunity continues.

The administration of vaccine at irregular intervals appears to have the effect of retarding or inhibiting the development of blood-changes, and may or may not have influence on the degree of immunity afforded.

There is apparently some evidence in favor of adopting the ten-day interval for vaccination over the seven-day term.

I trust, with the completion of this work and with further digestion of the results, we shall be able to present a more comprehensive report.

I wish to take this opportunity to thank Dr. Mullin, Dr. Chesley, and Miss Wade, of the State Board of Health, for the enormous amount of work they have done with us. I regret that our original plan of preparing this paper together could not be carried out.

#### DISCUSSION

DR. R. H. MULLIN (Minneapolis): The paper of Dr. Burlingame presents interesting features, some of which appeal to me as being very important. In the first place, it is definitely shown by the work done at Fergus Falls that we have in the use of antityphoid vaccine a method that is easily employed and easily adapted for protecting the insane against typhoid fever. To those who are concerned with such institutions, this must be a great boon, for typhoid fever among the insane is difficult to handle, and, as shown in the paper, the death-rate is higher than that which ordinarily obtains.

I think the authorities at Fergus Falls are to be congratulated on early adopting this method. So far as I know, they are the first of the state institutions to adopt this means of protecting these unfortunate patients who are in their charge.

The studies which have been made on the Widal reaction are rather interesting. It has been considered for some time that the Widal reaction is not a safe index of the amount of immunity that obtains after vaccination against typhoid fever. So far as I know, no very extensive work had been done along this line—that is, where a large number of cases have been tried—until this piece of work was undertaken. It shows several points fairly clearly. We get, as Dr. Burlingame says, about 94 per cent of the cases which will show a positive Widal some time after the vaccinating process has been undertaken. This corresponds very closely with what is thought to be the percentage of cases in which the Widal will occur in actual typhoid, so we have a fairly close correspondence there. In a small percentage of cases you fail to get a Widal after the vaccinating process; and so, too, in actual typhoid there is a small percentage of cases in which apparently it is impossible to get the Widal reaction.

The observations noted about the irregularity of the giving of the vaccine and the effect of that irregularity upon the presence of the Widal, I think, deserve a certain amount of notice, inasmuch as it should draw to our attention the necessity of following closely the lines



advocated, unless there is some adequate reason for departing from them. The ten-day interval is the interval that is used in the United States army—and it has been found there after a tremendous number of cases have been vaccinated—to afford protection; and I can see no reason for departing from that interval unless some better method is employed which is substantiated by experimental data, and we see in this series that where the ten-day interval is departed from there is a variation in the occurrence of the Widal.

The Widal may not properly be taken as an accurate index throughout, but it doubtless has some bearing. Just how much, we do not know. After this work of making Widal examinations was undertaken, the publication by Gay and Force, of California, came out. They had employed another method for attempting to determine the persistence of the immunity. They prepared a substance they called *typhoidin*, which corresponds in preparation exactly with Koch's old tuberculin; and they applied the test in the same manner as the von Pirquet tuberculin test. They published some interesting results, but, unfortunately, up to date not very extensive ones. Some of their results show that of 21 cases vaccinated by the method employed in the United States army, 14 showed a positive skin reaction in periods varying from eight months to four and three-quarter years after the inoculations had been completed. In 21 cases of actual typhoid they got positive skin reactions in 20 cases, one of which was four years after the attack of typhoid. In 41 normal cases, in which typhoid was fairly well excluded, they got positive reactions by the skin method in only 9 per cent. It may be that this von Pirquet with typhoidin, as advocated by Gay and Force, may afford an index of the amount and duration of the immunity. However, it seems to me the best index we have of the duration of the immunity is the clinical index. Of course, it is impossible to tell how long this immunity will last, but we know, from experience in the American army and in some of the European armies, it will last four years, so that we have a method of protecting the individual for that length of time.

Typhoid vaccine can be employed in other ways than where a large number of people are collected together. It is useful in other cases than those dealing with the army and in institutional cases. As a matter of fact, when the typhoid vaccine was first introduced it was recommended not to vaccinate people during the course of an actual epidemic, on account of Wright's statement that the vaccinating process was accompanied by what he called a negative phase. By the more recent method we have reduced the size of the dose slightly, so that this negative phase is non-existent, and typhoid vaccine can be freely employed during times of epidemics. This is of great importance to the general practitioner, because you all know how frequently, when one case of typhoid appears in a family, it will be followed in due course by one, two, or three others, depending upon the size of the family. Anti-typhoid vaccination of the remaining members of a family in which a case of typhoid has occurred, is to be strongly recommended as a means of preventing secondary cases in that family.

DR. C. L. SCOFIELD (Benson): Dr. Burlingame has truly said, in his most excellent paper, that the efficiency of typhoid vaccination has been settled beyond any reasonable question. The work of Major Russell in the United States army has proven that vaccination for

typhoid is more efficacious than vaccination for small-pox. It is, however, only by painstaking, methodical observations, such as have characterized the work done at the Fergus Falls Hospital, that we may learn the exact limitations of this comparatively new method of combating typhoid fever.

The prevention of typhoid is an extremely live question with me at the present time, for the reason that my town has just passed through a severe epidemic, probably the most severe in point of number of cases to population that the state has ever known. On the first day of last August our first case appeared. It was not a typical one, and, as we were not accustomed to meet the home-grown article, the diagnosis was delayed, and by the time it was settled a number of other cases had made their appearance—so many and so widely distributed in fact that we then realized that our most strenuous efforts would be required to handle the situation.

Twelve days from the time of the appearance of the first case, the water supply had been determined to be the only source of infection, and the water was being treated with hypochlorite. This gave us a probable primary infective period of about four weeks. During this time practically all of our people, besides a large number of visitors, had been exposed to the infection, and cases were now developing at the rate of from two to five a day.

In our extremity we naturally turned to vaccination, and we followed it with all possible vigor. Practically all members of families where the disease existed were vaccinated. It was urged with such vigor, that as a result the next few weeks saw fourteen hundred, or about seventy per cent of our population, vaccinated once, and most all had had the full three inoculations.

Of the school population ninety per cent had one vaccination, and over eighty per cent the three. Our results will be interesting here, principally by reason of the contrast in the conditions between them and the work already described by the essayist. We were facing a severe epidemic. Every doctor had double the amount of work that he could do well, and, under this stress, there was no time for elegant technic. Widal's were not to be thought of, the temperatures and histories were not often taken, and sterilization was quick and simple.

I regret being unable at this time to give final results, as the last of the primary cases are not yet among the convalescents, and we are just getting time to look around and see what happened to us. The State Board of Health had a representative with us much of the time, and it is possible that he will have interesting points to offer. I feel, however, that it is not too early to say that we are pleased with results of vaccination and think that it is saving us endless trouble.

Our experience seemed to show the following points:

The reaction from vaccination is not severe.

In a race between infection and vaccination, vaccination will always lose. Fifteen per cent of our cases had been vaccinated ten days or less before coming down with the disease, and five per cent had had their second. One case developed nine days after the second dose and another on the seventh day. Our observations did not lead us to believe that vaccination has any effect on the course of the disease in those who had been partially immunized before coming down. We vaccinated quite a number who had had typhoid, and the reaction in

these seemed more severe than in others. As I said before we realize that we are not "out of the woods yet," but I have great satisfaction in saying that six weeks have passed, and we have yet to find our first secondary case.

DR. HENRY L. ULRICH (Minneapolis): I think we are to be congratulated on having heard this very excellent paper on the study of prophylactic typhoid inoculation of the insane in our state. It immediately suggests other studies in co-operation with the State Board of Health in our institutions, such as the incidence of the disease of syphilis, incidence of prophylaxis in diphtheria, or in streptococcus inoculations in scarlet fever and so on.

The value to us as lay practitioners of this study under discussion is the opportunity to see the variations of the laws governing immunization, such as the variability of the Widal reaction, the variability of the time of inoculation, the variability of the number of inoculations, etc. This knowledge is of utmost importance to us as practitioners in adjudicating our own cases and results.

The subject brings up the clinical question of the carrier. The carrier, as we understand it, is usually a person who has undergone a siege of typhoid. During his process of auto-immunization his bacteria have immunized themselves against the juices of their host. Both are highly resistant to each other, and thus they live with each other in a stage of symbiosis or commensalism.

Up to the present time, under our improved health laws, the problems of water and milk supplies are amply taken care of. But today the carrier is the problem of the State Health Department and the local health department. And the crux of the situation is the individual practitioner. No case of typhoid fever ought to be dismissed without an examination and review of the feces and urine, to determine whether the patient is a carrier or not. This ought to be done in every case, so that we

can detect at the source, the weak chain in our link of prophylaxis. I speak without authority, but I am certain the State Health Department would co-operate with any practitioner to ascertain these facts,—i. e., whether a "cured" typhoid is a carrier or not.

The problem of the carrier, after he is discovered, is important. These cases must be taken care of, and it will come to the point where our state laws may have to provide some method of isolation, such as detention-camps. For instance, we have had a carrier under observation for over six months at the University Hospital. He is in excellent health. We have inoculated stock vaccines and vaccines of his own organism, isolated from his feces, without results. What are we to do with such a person? Are we to detain him indefinitely; or are we to send him out among the people? That is a question which the authorities must decide.

One of the points brought out by the essayist was the fallibility of the Widal reaction,—whether a patient is immunized temporarily or for a longer period of time. In the study of immunization we find that antibody-formation varies in kind during the process. Perhaps the antibody called *bacteriolysis* would be a more constant measure of immunity; but the labor involved makes it too impractical. I think we can safely say so far as the process has gone in immunization, if once we have a positive Widal we can assume that immunity is conferred against the disease.

As regards the skin reaction which Dr. Mullin pointed out: I think that reaction is purely a question of hypersensitivity to a foreign proteid, and therefore, like the von Pirquet in tuberculosis, is less of value as a diagnostic means than a measure of sensitization.

DR. CHARLES E. SMITH, JR. (closing the discussion for Dr. Burlingame): I can only express for the Program Committee their appreciation of Dr. Burlingame's paper and the vast amount of work he has done; and I wish to present his apologies that he is not here today.

## COMMON ERRORS IN GALL-TRACT SURGERY\*

By C. E. RUTH, M. D.

DES MOINES, IOWA

IN TWO PARTS—PART I

An operative technic which gives a low mortality may be far from perfection, especially when relief is not obtained by the patient from the trouble for which the operation was done or when other calamities must be endured by the patient which are a direct result of the operation.

In no class of operative procedures for non-malignant conditions are secondary operations required in so large a percentage as in those done upon the gall-tracts. In no class of abdominal work is the temptation greater for inefficient or incomplete work, and in none is complete work more difficult than that encountered in many of

these cases. Stones in the common duct, at or near the lower end, are found, and removed successfully by only a very few operators. The amateur aspirant to surgical honors and perquisites can safely drain a large, readily accessible gall-bladder, and, if perchance he find a stone, that is the end of the matter with him as covering all requirements and obligations.

I am reminded that once I opened the abdomen, after having done several thousand abdominal sections, and examined carefully for gall-stones, and did not find any; but at post-mortem four weeks later seventeen stones were found in the gall-bladder, and one in the ampulla of Vater.

At another time when doing an abdominal

\*Read at the 32d annua' meeting of the South Dakota State Medical Association at Watertown, May 27 and 28, 1914.

section for other causes I confirmed by direct palpation a previously made diagnosis of gall-stones; but six months later when she came to operation for removal of the gall-stones I could not find even a gall-bladder, but encountered pancreatic calculi amounting to over a thousand grains, forming a complete cast of the entire pancreatic-duct-system. These I was able, with great difficulty, to remove successfully through incisions in the pancreas after opening through the gastrohepatic fold of mesentery, which enabled me to reach the affected organ after displacing the stomach downward. I am convinced that no operation for relief of a supposed pathological condition in the biliary tracts is completed without an examination of the pancreas.

The large number of secondary gall-tract operations is due to errors in diagnosis, failure to

end of the stomach, and the first part of the duodenum, gall-bladder, liver, and abdominal wall, one continuous mass of adhesions. The result is that such a patient is never free from discomfort by pain, dragging, impaired stomach-motility, and, often, partial obstruction of the pylorus, which causes gastric dilatation with its accompanying entertainment.

Unnecessary and rough handling of abdominal viscera during operation, unnecessary wiping of endothelial surfaces with gauze, especially dry gauze, extensive and unnecessary spreading of infection over clean territory and making no intelligent use of nature's preventive material at hand, are the principal causes of these deplorable and preventable complications. Relief of these patients from the operative complications requires much more skill, and represents much



Fig. 1

Fig. 2

Fig. 1. Author's technic. Method of incising gall-bladder, the fundus being grasped by flat forceps.

Fig. 2. Opening in the fundus spread so as to allow ready access to the interior of the gall-bladder. The method of placing the first row of sutures, and the prepared drainage-tube, are depicted in the upper corner of the illustration.



Fig. 3

Fig. 4

Fig. 3. Drainage-tube in situ, and held by the first row of sutures.

Fig. 4. Second row of sutures in place, and tube ready for inversion into the gall-bladder. Note the suture passing through the tube, insuring against dislodgment by undue traction or other accident. (The suture-ends have been tied and clipped.)

remove all calculi, allowing the drainage to close while infection is still active, or failure to remove the gall-bladder in all cases in which there is not a free communication or passage in both directions through the cystic duct, provided the common duct is freely patent.

Bile may often pass quite readily from the common duct into the gall-bladder, but returns with much difficulty, or not at all, by the ordinary contractions of the gall-bladder. In such cases permanent drainage or removal of the gall-bladder can alone afford permanent relief. The removal of the gall-bladder, or its entire mucosa down close to the junction with the common duct, is imperative to make relief permanent and obviate drainage annoyance.

In many cases of secondary operations following gall-bladder drainage, I find the pyloric

more danger and difficulty, than properly to deal with the original trouble.

In no case should the gall-bladder be attached directly to the abdominal parietes in drainage operations, because of the traction and dragging so liable to subsequently torture the patient. In all cases the drainage-tube placed in the gall-bladder should be large, and the margins of the gall-bladder should be inverted, so that when the tube is removed the margins of the inverted gall-bladder opening at once collapse and promptly close the drainage. (Figs. 4 and 5.) However, should the bile show the presence of infection, by culture examination, a tube must at once be replaced, and drainage maintained until the infection is under control.

The first or original tube placed in the gall-bladder must be secured by a catgut suture placed



in the gall-bladder, which will hold at least eight days. (Figs. 1, 2 and 3.) The tube should lie free in the abdomen from where it leaves the gall-bladder to the point where it is to pass through the parietes; and at the latter point it should pass through a stab-wound made on purpose for it, and should *never pass*, as is the almost universal custom, *through the main wound*. (Fig. 6.) The protruding end of the tube should then be connected to a drainage-tube long enough to reach a safe distance from the patient (it is better to attach it to the bed rail), where it enters a bottle containing two or three ounces of a ten per cent of alcohol-carbolic solution, into which the end of the drainage-tube is passed, so that the end of the tube is kept all the time below the surface of the liquid. (Figs. 7 and 8.) This plan enables the main wound to be closed

wound for drainage, instead of the stab-wound, say, two inches to the right, which will give vastly better drainage, particularly with the patient lying on the right side. The time-honored incision through the rectus, straight or bayonet, is much more vascular than the median or near median incision causing some degree of annoyance in operating; and when anything but a simple drainage of a readily accessible distended gall-bladder is done, it requires enlarging to such a degree that more or less sectioning must be done of the nerve supply to the abdominal wall and rectus, with permanent sensory paralysis of a portion, so that, as one patient expressed it, "I am unable to tell whether I am feeling my own abdomen or someone else's except by sight," to say nothing of increased danger of hernia from imperfect motor and nutritive muscular



Fig. 5

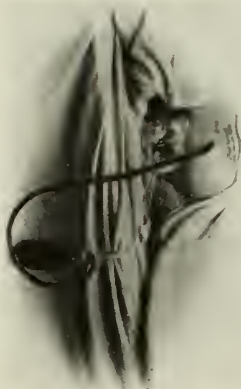


Fig. 6

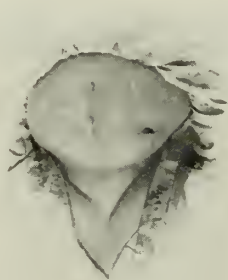


Fig. 7



Fig. 8

Fig. 5. Showing position of the parts after the tube has been inverted, and the free end brought externally through a stab-wound. Generally a stitch of silk-worm gut is placed through the skin edges and tube, again insuring against dislodgment of the tube by traction.

Fig. 6. Showing the arrangement of the external drainage system. The skin about the median wound remains slightly discolored from iodine stain. Note the relation of the stab-wound to the median incision, and the glass connection (sight drain) between the drain proper and the rubber tubing. The bottle, containing an alcohol-phenol solution, should be lower than depicted, thus obviating all danger of kinking of the tube at the neck of bottle.

Fig. 7. Same as Figure 6 (Case 21), showing abdomen after removal of drainage tube.

Fig. 8. Showing applicability of method in case of general suppurative peritonitis complicated by acute dilatation of the stomach, with enormous amount of fecal matter in the organ. Patient apparently moribund four days before abdominal section. Although median wound was bathed in purulent matter, union of the parts was obtained without any difficulty.

entirely and to remain dry; and in the vast majority of cases primary union can be secured, thus entirely eliminating other preventable complications, such as suppuration of any part of the main wound, prolonged convalescence, and a large percentage of hernias, for which there is *slight, if any, justifiability*.

The use of the median incision for operating upon all gall-tract cases will make it possible at the same time to deal with any other condition or complication in the abdomen through the same, or an extension of the same, incision, while it almost removes the temptation to use the main

innervation, as well as liability to infection from drainage contact with the line of incision. Many gall-tract cases require appendectomy, and, in women, often attention to the uterus or adnexa as well, in which case the median incision or an extension of it enables all to be done through the one incision, with no necessity for any complication whatever arising from such extension and with no added operative difficulty. Any gall-tract operation can be done quite as well, and, if complicated, much better, through the median than through any other incision.

Removal of the gall-bladder is seldom difficult if done at the first operation under proper technic, and not as a secondary procedure, provided in-

fection and trauma have not caused extensive and dense adhesions.

In my own work I prefer to remove the gall-bladder by first clamping the cystic duct between strong forceps close to its junction with the common duct, and then divide the duct between the forceps. The forceps, placed on the cystic duct close to the common duct, must be made to grasp the cystic artery also. The gall-bladder is then readily separated from the under surface of the liver, and entirely removed almost without hemorrhage. In other cases where adhesions are dense, and it is difficult to find and follow the cystic duct though the gall-bladder is accessible, I have found it easier and better to follow the gall-bladder and cystic duct downward from the fundus, splitting the bladder and duct all the way down. In this way I have found it easy to trace, and the hemorrhage was slight. When the termination of the duct is found, it and the gall-bladder may be dealt with as above or the mucosa of the cystic duct may be ligated close to the mouth of the duct, all the balance of the mucosa removed, and the two outer coats closed over all, leaving a smooth peritoneal surface. This is quite as effective as removal, and it eliminates the gall-bladder as a subsequent annoyance and danger just as safely and permanently as does the other plan.

A good-sized drainage-tube should, however, be sutured in the bottom of the wound in contact with the point of greatest probability of leakage of bile; and the patient should lie on the right side for the first forty-eight hours, so that there will be free down-hill drainage through the tube to the outside of the body, with no tendency to damming back or overflow through the general peritoneal cavity, but an open canal and no back pressure.

An additional precaution is the placing of an angular or curved-glass tubal connection in the drainage-tube which passes through the abdominal wall, and, connecting the other end with a long tube which is passed into the drainage-bottle and by leaving one or two inches of the glass-connection exposed, the presence or absence of drainage can be at once noted on inspection.

In obstruction of the common duct from inoperable carcinomatous conditions it is wise to make an anastomosis between the fundus of the gall-bladder and the highest point available in the small intestine.

A small Murphy button properly placed makes an admirable anastomosis connection, though, I think, it wise to attach a string and piece of

gauze to the intestinal side to exert traction upon the button, and prevent its sticking, or perchance falling back into the gall-bladder.

When the gall-bladder is not available as above for switching the biliary current into the intestinal tract, and the common duct is largely lost by removal for malignancy, a soft-rubber drainage-tube may be inserted into the hepatic end of the common duct, and secured by encircling catgut ligature and suture while the other end is inserted into the duodenum, passing through the intestinal coats diagonally for one-half to three-fourths of an inch. It should have a silk or linen thread attached to gauze in the intestine, and fastened to the lower end of the tube. This will make light traction upon the tube in all downward peristalsis, and will finally free the rubber, which will pass with the fecal current, but not before nature's kindly offices have formed a mucus and endothelial lined tube or new duct to convey bile into the intestine.

The function of the gall-bladder being to regulate the tension of the gall-circulation, and not at all for storage purposes, readily accounts for the relative impunity with which it may be removed, and the patient suffer no marked inconvenience in its loss.

Avoidance of a return to the old habits of life which caused the original gall-tract infection, will usually prevent a return of the conditions which necessitated the first operation, provided the operation be properly done, or the patient's condition be such as to warrant a completed operation.

The time has long and forever gone when we operate upon the gall-tract simply to remove stones. I recently drained a gall-bladder for an infection which was only four days old, and found I was dealing with a most intensely vicious primary and pure streptococcic infection. The progress of this case, however, was favorable until the tenth day, when a pneumococcic infection caused complete consolidation of the entire right lung. This latter complication taxed the patient to the utmost, and made it impossible to avoid infection of the main wound, which is a rare occurrence in our work, though the patient made a good recovery.

Three cases represent sufficient interest I think to justify reporting in some detail.

CASE 1.—Mrs. L., patient of Dr. J. Johnson, Alden, Iowa. She was operated upon about six weeks before she came into my hands; and drainage of the gall-bladder was done, but no stones were found. She was first seen by me on Nov. 8, 1912, and was operated on

in Iowa Falls, Iowa. She had obtained no relief from the previous operation.

Finding the pyloric end of the stomach and the first part of the duodenum firmly attached to the anterior abdominal wall, I released them, and re-drained the gall-bladder. Relief was prompt, and continued as long as the drainage was maintained, but pain returned at once when the drainage of bile ceased.

She returned to me for operation on February 3, 1913, at which time, dreading to remove the omental graft I had placed to prevent the duodenum and stomach from uniting to the abdominal wall, and not enjoying the prospect of an enucleation of the gall-bladder because of the adhesions, which I knew to be extensive and dense, I decided to permanently drain the gall-bladder into the nearest and most readily accessible part of the intestinal tract, which happened to be the hepatic flexure of the colon.

The anastomosis was made with a small Murphy button with string and gauze in the intestine attached to the button. Recovery was without incident, save that the button was never found. She was absolutely free from pain and discomfort for five months, and then the pain returned as before.

Examination showed that the chole-cyst-enterostomy anastomosis had practically closed, so that drainage of bile into the colon from the gall-bladder was no longer free, and the gall-bladder was found distended with bile, which had become sufficiently stagnant within the cystic duct to begin the formation of calculi on mucus-cholesterine precipitate. The gall-bladder was accordingly removed after sectioning and permanently and carefully closing the former attachment to the colon.

This plan offered the only apparent hope of permanent relief because the cystic-duct patency permitted of tolerably free passage of bile into the gall-bladder, but would not allow it to readily return by the same route.

CASE 2.—The case was referred by Dr. Will G. Walker, Corydon, Iowa, and was operated on in April, 1910. Two gall-stones were removed, and some work done on the pelvic organs. In March, 1911, she was operated on, and another drainage of the gall-bladder was done. Neither operation gave any relief from pain or daily vomiting.

She was first operated on by me on December 13, 1911, for a small inguinal hernia on the right side. Following this herniotomy, she did not vomit for five weeks; then vomiting returned, and was as bad as before.

On June 24, 1912, she returned for relief from pain and vomiting. An x-ray showed dilatation and ptosis of the greater curvature of the stomach. Impaired motility of the stomach was believed to be due to adhesions. Opening the abdomen disclosed a mass of adhesions so dense and extensive that in her enfeebled condition I lacked the courage to separate them, and chose the easier operation, viz., a posterior gastrojejunostomy without loop, in the hope that better drainage of the stomach would control the pain and vomiting.

Recovery was prompt, and she rapidly gained in flesh and strength; but within a few weeks occasional vomiting and some pain returned, and within five months it was as bad as ever, though on a dry diet she would occasionally gain for a time quite a little in flesh and strength only to lose it again.

In May, 1913, a careful examination of stomach after Ewald and motor meals showed only evidence of impaired motility, presumably due to the old adhesions following her first two operations.

On July 16, 1913, I separated the most extensive and dense adhesions I have ever seen. They were uniting the stomach, duodenum, liver, and anterior abdominal walls; and then over all the extensive area thus denuded I anchored the omentum to prevent re-formation of adhesions and limitations of the stomach and duodenal functions.

Slight acute dilatation threatened for a couple of days, but yielded to the use of the stomach-tube, after which her recovery was uneventful, and she gained about thirty pounds in weight in three or four months; but within eight months there was a return of the old symptoms, and loss of all she had gained.

CASE 3.—Mrs. G., referred by Dr. J. W. Garver, Peru, Iowa. Was operated on in January, 1910, for cholelithiasis; and in April, 1910, ovariectomy was done. In January, 1911, she was operated on for ventral hernia, and in September, 1911, for appendicitis.

She came into my hands on July 25, 1912, suffering from severe attacks of pain and vomiting, the pain vaguely located in her upper abdomen. Her strength, however, was good, and she was quite obese.

She had dilatation of the stomach; and nearly all the omentum she possessed had been used up in adhesions resulting from previous operations. We had decided upon gastrojejunostomy as the safest and surest means of relief, but finding a gall-stone of considerable size, the same was removed, and drainage of the gall-bladder was done, after which I did my regular posterior gastrojejunostomy without loop, *with a rubber dam over the posterior edge of the anastomosis*. For nearly two years since operation she has been free from pain and vomiting, and has made considerable additions to her already abundant adipose.

These cases are presented as object lessons in the belief that an analysis of the cases in which bad results were obtained, or in which the patients were relieved only after four or five operations, may help us in reaching the goal at a bound, or, at most, by a second trial in competent hands, instead of by repeatedly jeopardizing life in new operative attempts, where the surgeon's operative difficulties have been doubled or even quadrupled by previous bungling.

[Concluded in our next issue.]



# THE X-RAY TREATMENT OF UTERINE MYOMAS AND METRORRHAGIAS\*

By M. A. STERN, M. D.

SIoux FALLS, SOUTH DAKOTA

Since Prof. Röntgen discovered the x-ray nineteen years ago, great advances have been made in the field of x-ray and physical diagnosis. Especially has the work of Holzknecht and Haudek taught us many things about the fluoroscopic examination of the gastro-intestinal canal. It is only comparatively recently, however, that systematic efforts have been made to determine the therapeutic efficiency of the x-ray.

That the Röntgen ray has a powerful action on the surface of the body can not be denied. One has only to call to mind the x-ray burn with its carcinoma-like histopathology and course.

About six years ago Prof. Albers Shonberg, of Hamberg, became convinced that the hard or penetrating portion of the x-rays had some therapeutic action on the deeper structures of the human body.

Pertes, as early as 1904, showed that it was possible to filter off the softer rays of the x-ray stream by interposing a sheet of aluminum, glass, or leather between the tube and the body. This fact is really the corner-stone of the so-called "Tiefentherapie." Dessauer, following this work, used glass as a filter, and rayed from a distance of several meters, the idea being to get a homogeneous mixture of the different qualities of the x-ray emanations. These trials led Prof. Albers Shonberg to place the tube at a distance of 38 cm. from the skin, using 1 mm. of leather as a filter, and to send 2 to 3 milliamperes through the tube, exposing not over eighteen minutes all told. This, then, was the first systematic attempt to develop a technic for the treatment of deeper structures. With this very small dose of x-rays Albers Shonberg got results in 60 per cent of the myomas treated.

In 1908 Prof. Gauss and Assistant Lembke, of Freiburg, took up the work, and investigated this entire field upon both an experimental and clinical basis. They arrived at the following conclusions:

1. According to Gauss and Lembke an extra-hard tube of 12 to 13 Wenelt units must be used. This shows the ordinary mixture given off by a middle-soft tube. You see that the soft

rays compose over one-half the amount of the total rays. These are the rays that cause skin-burns, and, having little or no penetration, are useless for deep therapy. In other words, the harder the tube the greater the penetration, in quantity as well as quality. Should we administer an erythema dose to the skin with a soft tube, and an erythema dose to the skin with a hard tube, the effect on the deeper structures would be entirely different.

2. After experimenting with many kinds and thicknesses of filters, Gauss arrived at the conclusion that a filter of 3 mm. of aluminum was the one best calculated to give the maximum effect. As the penetrability of a filter is a function of its atomic weight, and as the secondary rays generated in the aluminum are supposed to have a high degree of penetration, theoretically as well as in practice, this is the best filter. We see here very distinctly the advantage obtained for the deeper structures in applying an erythema dose to the skin through a filter.

3. For maximum effect the tube must be 20 cm. from the skin, or even closer. The effect of the Röntgen rays varies inversely as the square of the distance from the target.

4. Raying a great number of fields so that the deeper parts are cross-fired.

5. By sending 5 to 6 milliamperes through the tube under these conditions patients are given an erythema dose over twelve to twenty fields, comprising 100 to 300 X at a sitting. This makes one sitting from two and one-half to four hours long. These sittings are repeated every week, or, better, every two weeks till amenorrhea or decrease in the size of the myoma is obtained. This requires from three to eight sittings. In order to run 6 milliamperes through a tube for hours at a time, it becomes necessary to use a "rythmeur" in the primary circuit, which makes and breaks the current about sixty times a minute, thus delivering the x-ray energy in flashes, and allowing the tube time to cool. Even with this attachment it is best to use a water-cooled tube, the flowing water absorbing the generated heat.

Gauss, up to 1913, has treated over 250 cases of myomas and metrorrhagias by the method outlined above; and he makes the statement that

\*Read at the 35d annual meeting of the South Dakota State Medical Association at Watertown, May 27 and 28, 1914.

with his improved technic 100 per cent of myomas and ovarian metrorrhagias are curable. In the gynecological clinic at Freiburg, the only cases operated on are (1) pedunculated fibroids hanging from the cavity of the uterus, (2) those myomas that have undergone cystic or malignant degeneration. The detailed case-histories of over 200 cases are to be found in Gauss' book on "Tiefentherapie." I copy one here taken at random.

CASE 134.—Mrs. B., aged 40, has had inflammatory rheumatism.

Menstruation: Regular every 25 days; during the last four times she has flowed very copiously.

Complaint: Back-ache and feels very weak.

Vaginal finding: Tumor the size of a man's head. It is hard and irregular and reaches to the umbilicus.

Diagnosis: Uterus myomatosis.

Purpose of treatment: Amenorrhea.

Course: June 24th to 27th, 123 X.

July 7th to 19th, 166 X, with no change in the menstrual period.

August 7th to 8th, 256 X. Patient slept poorly, lost appetite, and complained of a general feeling of discomfort.

August 28th to 29th, 226 X. Since last treatment there has been a slight amount of bleeding that stopped September 15th. Patient felt very bad after this treatment.

September 19th to 20th, 180 X.

October 7th. The tumor has shrunk to one-half its former size; has no more bleeding; walks distances without discomfort.

October 24th, 112 X. Amenorrhea after three and one-half months' treatment: five treatments, 951 X.

Dr. Haret (Fortschritte auf dem Gebiete der Röntgenstrahlen, vol. 2, No. xxi) reports 28 cases treated in St. Antoine Hospital in Paris. The technic is not the same as used by Gauss, as .5 mm. filter was used. In 2 out of the 28 cases no result was obtained, but in one case amenorrhea was obtained after two sittings; in 1 case, after three sittings; in 1 case, after four sittings; in 1 case, after five sittings; in 3 cases, after six sittings; in 1 case, after seven sittings; in 1 case, after eight sittings; in 1 case, after nine sittings; in 1 case, after ten sittings; in 3 cases, after thirteen sittings; in 2 cases, after fourteen sittings; in 1 case, after sixteen sittings.

We started three months ago to use the technic of Gauss, and have treated two cases.

CASE 1.—Mrs. F., aged 39. No previous illnesses.

Menstruation: 28-day type of six days' duration. During January and February, copious, irregular hemorrhages. Patient exsanguinated. Mucous membranes, pale.

Hemoglobin, 60.

Vaginal examination: Uterus enlarged, hard, and irregular protrusion on the posterior surface.

Diagnosis: Uterus myomatosis.

Course: March 27th, 12 fields rayed—30 X.

April 3rd, 6 fields rayed—19 X.

April 10th, 12 fields rayed—48 X.

April 17th, 12 fields rayed—24 X. Patient men-

struating; lasted nine days, and was very copious.

April 24th, 30 X. Patient developed a severe cystitis after this treatment.

May 1st, 30 X. Cystitis somewhat better.

May 7th, 20 X.

May 14th, no treatment. Patient had a very scanty menstruation, lasting but four days. Patient considers herself cured. Vaginal examination shows the swelling still present on the posterior surface of the uterus, though considerably smaller than at first.

CASE 2.—Mrs. C., aged 62. Last menstrual period, twelve years ago.

Complaint: Pressure in lower abdomen, and difficulty in passing stool.

Vaginal examination: Large, irregular, hard, freely movable fibroid reaching one finger above the navel. Patient states that the tumor started to grow two years ago after a ten-year period of quiescence.

In this case the question of malignant degeneration was a vital one, but malignancy was finally ruled out on account of the good movability of the uterus.

March 29th, 6 fields—15 X.

April 5th, 8 fields—23 X.

April 19th, 12 fields—30 X.

April 26th, 12 fields—32 X.

Patient believes tumor to be somewhat smaller. Has no difficulty with stool, and no more distress in abdomen. Bimanual examination shows the tumor apparently the same size as before. Treatment was broken off here on account of an unavoidable misfortune in the family, but will be resumed at a later date.

Now, I wish to compare the x-ray with the operative treatment, considering the following points: (1) mortality, (2) length of disability, (3) end-results.

The mortality in 505 operations, the cases coming from different sources, was 3.5 per cent. The mortality under x-ray treatment is, of course, *nil*; in fact cases which were too anemic to take an anesthetic have been successfully treated by the non-operative method. Gauss reports his worst case as a patient aged 42, with a tumor reaching three finger-breadths above the navel. Legs, edematous; lips, white; face, ashen; voluntary movements caused fainting. It is his firm opinion that this case would never have survived a surgical operation, yet after five months she was discharged as cured with the tumor one-half the size of a fist.

2. The length of disability: (a) operative. It takes about two weeks for patients to get about after hysterectomy, and three to four more before they can perform their customary duties. In all, six to seven weeks; (b) by the x-ray method amenorrhea is obtained in the same time, with this great advantage, that the patients can be at home, and possibly pursue their customary occupations between treatments. At no time are

they forced to go to a hospital, or lie abed more than one day.

3. End-results: (a) After amenorrhea obtained by the x-ray, there are symptoms of disturbed ovarian function, but they are never of the stormy nature that one observes after ovariectomy. Gauss states that it is probable that only the follicular portion of the ovary is destroyed, leaving a portion of the internal secretion to balance the secretion of the thyroid, adrenals and hypophysis.

After nine months, of 55 patients re-examined 54 were cured.—"Freiburg Klinik."

The action of the x-ray on myomas is not well understood. That it does not depend on the destruction of the ovaries is proven by the results obtained in shrinking tumors of women long past the menopause.

Since this paper was written there has been some change in the technic of this treatment.

#### DISCUSSION

DR. T. J. BILLION (Sioux Falls): I have not had occasion to be brought in contact with the kind of work that has been presented by Dr. Stern. When Dr. Stern came back full of enthusiasm, and told us that Dr. Gauss, one of the leading gynecologists of Europe, had quit operating on fibromyomas on account of the fine results that he was getting by means of the x-ray, I became enthusiastic also, but I have had only slight chance to look up the matter, and I have every reason to believe that the results the doctor reports are correct

and can be obtained by any man who will carry out the proper technic. The carrying out of the proper technic requires an intimate knowledge of x-ray work. I have not had the experience, so that I do not possess the knowledge to speak with authority. I can only accept the findings of others who have had experience with this treatment; but I feel absolutely certain that the time is coming when the surgeon will adopt this method, and the public will be greatly benefited.

DR. F. A. SPAFFORD (Flandreau): I think Dr. Stern may be proud of the fact that he enjoys the distinction of having introduced a very valuable therapeutic measure in the treatment of this class of cases in this state and perhaps in the northwest.

DR. STERN (closing): I have not a great deal to say in addition to what I have already said. I cannot vouch for the statistics of cases I have quoted, but I know Dr. Gauss is a prominent gynecologist, and enjoys a well-deserved reputation for veracity. He has published a book which comprises the results of his experience at the Freiburg clinic; and until this treatment is taken up and tested by some of the leaders in this country we must accept his conclusions as to the results of this treatment. I have had experience with this treatment in only two cases, in one of which the result was satisfactory, but I do not know how long it will continue. In the second case, treatment had to be interrupted. I venture the prediction that within two years we shall see gynecologists and surgeons adopting this method of treatment and finding it an extremely valuable measure. It has already been started in New York. I read a report about the method in the *New York Medical Journal*, and I am convinced it is of great value; and, as I have said, within two years time there will be a wonderful increase in its application.

## THE BACTERIOLOGY OF THE EUSTACHIAN TUBE\*

BY CHARLES F. COULTER, M. D. and CHARLES H. PIERCE, M. D.

WADENA, MINNESOTA.

*Theme.*—To prove or disprove the theory that the Eustachian tube serves merely as a drainage-tube for the middle ear, or performs a more delicate and specialized duty of maintaining a sterile positive or negative pressure to suit the emergency and to throw some light on the yet-dark realm of predisposing etiology and pathology of catarrhal affections of the middle ear and Eustachian tube and of suppurative conditions and otosclerosis.

So much confusion exists concerning the invasion of the middle ear by organisms, that we were led to devise a technic for the determination of the role of the Eustachian tube in this matter. Obviously, infection occurs by one of four routes: the Eustachian tube, the external canal, the internal auditory canal, or the blood.

The Eustachian tube has assumed too long the blame for infection by continuity. In an endeavor to prove the innocence of the tube, we have taken up this work; and we trust that the publication of the technic may induce others to delve into this interesting study.

*Technic.*—The technic followed throughout the experiment has been very simple, and is easily carried out in the office of any practitioner.

*Instruments.*—Two Politzer catheters (silver), sterilized and the distal end sealed with collodion film; two fiber (Weber-Liel) Eustachian catheters, which are sterilized by boiling, after which they, too, are sealed at the distal end with collodion; and two Yankauer Eustachian applicators.

The two latter instruments are marked, and the exact distance to the neck of the isthmus tabulated on the fiber catheter (S) and the

\*Read at the 46th annual meeting of the Minnesota State Medical Association, St. Paul, October 1 and 2, 1914.



measurements beyond are carefully marked on the sterile catheter. The three are loaded as follows: The silver Eustachian catheter is first carefully put in position in the mouth of the Eustachian tube, the operator checking up the position of the beak with an electric Holmes nasopharyngoscope passed through the other nasal opening. When the operator is thoroughly convinced that the catheter is in good position, the sterile, sealed fiber catheter is carefully introduced through it, and pushed in until the measurements show that the neck of the isthmus has been reached. In pushing the fiber catheter through the mouth of the silver catheter, the film of collodion is displaced like a trap-door, as one side always remains fastened. The sterile Yankauer applicator is now introduced, and the same technic of insertion is maintained, as in the case of the fiber catheter, the external measurements showing the operator exactly where he is in the tube. In withdrawing the instruments the technic is reversed, the applicator first being withdrawn to a point inside the fiber catheter checked by measurement; and the fiber catheter is then withdrawn to a point within the silver catheter, checked as before described; and the two former are completely withdrawn from the silver catheter, and the cultures made in the well-known manner with the technic common to all laboratories.

The culture has been made on both nutrient and plain agar and incubated at 37° C. They were examined at intervals of once in 12 hours for 72 hours, and kept for at least 120 hours.

All of the cases reported, except Nos. 6 and 7, and the cadavers, for the reports on which we are greatly indebted to H. W. Morris of the Anatomical Department of the State University, were catarrhal otitides with reduction in hearing, subjective noises, retracted membranes, and narrowed necks in the tubes.

Case VI (E. K.) was a recently operated simple mastoid. His Eustachian tube was pervious, and yet was not draining the middle ear, although he had had a previous paracentesis.

Case VII (M. J.) was a suppurative otitis from whose middle ear we obtained a positive culture, and yet whose Eustachian tube was not infected.

CONCLUSIONS

- 1. We have found the Eustachian tube sterile in all cases (5) of catarrhal otitis examined.
- 2. We have found the Eustachian tube sterile in two cases of suppuration in the middle ear.
- 3. We have found the middle-ear cavity ster-

ile in seven cadavers, the patient having died from other causes than ear complications.

4. Our report tends to show that the contention of certain authors, namely, that the middle ear suppurations are caused, or their continuance is favored, by infections received through the agency of the tube, is false.

CULTURES

Case	Ear	Mouth of Eust. Tube	Nose of Eust. Cath.	Isthmus
1 Mrs. L.	R	Staphylococcus .....	Negative .....	Negative
	L	Pneumococcus .....	Negative .....	Negative
2 A. J.	R	Staphylococcus .....	Negative .....	Negative
	L	Staphylococcus .....	Negative .....	Negative
3 A. P.	R	Staphylococcus .....	Negative .....	Negative
	L	Staphylococcus .....	Negative .....	Negative
4 Mrs. B.	R	Streptococcus .....	Negative .....	Negative
	L	Streptococcus .....	Negative .....	Negative
5 Miss L.	R	Streptococcus .....	Negative .....	Negative
	L	Streptococcus .....	Negative .....	Negative
6 E. K. Swartze's mastoid	R	Staphylococcus .....	Negative .....	Negative
	L	Staphylococcus .....	Negative .....	Negative
7 M. J. O. M. C. S.	R	Staphylococcus .....	Negative .....	Negative
	L	Micrococcus catarrhalis.....	Negative .....	Negative
8 to 14 Cadavers		Cultures taken through sterile opening in membrana tympani. All negative except one, which showed a small growth of streptococcus.		

DISCUSSION

DR. F. J. PRATT (Minneapolis): I think this paper shows good work and careful technic. I am quite positive in my own mind that the Eustachian tube does drain. Of course, it is very poorly placed while we are in the upright position, the Eustachian tube coming from the upper and posterior part of the middle-ear cavity; but, lying down allows this cavity to drain, and all cavities must have some sort of drainage.

One other thing that tends to prove this. Very commonly a patient comes in with an earache; and by careful inquiry we find he has blown his nose, and the ears have become plugged. In many of these cases you will find that the drum will bulge a little, showing that there is something behind it. If the infection is not too virulent, under careful treatment, with no paracentesis, this ear will get well, showing that this fluid and infection must go somewhere; that it must be absorbed or drained. I think a great deal of it must be drained.

As to infection by continuity: As long as the Eustachian tube is normal, then the cilia of the epithelial layer tend to force any secretion or any infective material out. Anything that tends to destroy the cilia naturally leaves the mucous membrane in a position whereby the germs can gain entrance to the ear.

The most common things are adenoids or enlarged tonsils, from continuity of swollen mucous membrane, or any occlusion of the nose, and of course the most common cause of the occlusion in these cases is from colds which cause a congestion of the mucous membrane, a hyperemia which must extend back and into

the Eustachian tube. As soon as this happens the cilia are destroyed, and the ear then is open to infection.

I think the essayist is working along a good line, and I hope he will continue it especially in cases of acute colds. These are the cases, and if there is any chance of infection in the Eustachian tube it will show. I hope he will continue his investigations along that line.

DR. GEORGE C. DITTMAN (St. Paul): I am unable to find any literature upon this subject, but, I have no doubt, the whole explanation lies with the histology of the Eustachian tube, consisting, as it does, of ciliated epithelium and a layer of adenoid tissue and glandular tissue, each separated from the other by a layer of elastic tissue; and, as the classical physiological experiment has demonstrated, ciliated epithelium has a cer-

tain active power in moving foreign bodies. This I think would account for the sterile condition of the Eustachian tube; and, unless the cilia are active, the tube itself becomes involved, and fails as a barrier against infection to the internal ear.

We are all acquainted with the results attained after the removal of adenoids in children with an accompanying suppurating ear. This of course explains the function of the Eustachian tube as a means for drainage of the internal ear.

The authors of this paper are to be commended on their unique technic and methods used for attaining their results. Probably more work in this particular domain of the ear can be done, and conclusions better drawn in the future.

## THE TONSILS IN RELATION TO SYSTEMIC DISEASE\*

By E. H. PARKER, M. D.

MINNEAPOLIS

In speaking of the tonsil I wish to include in a general way the lymphoid ring of Waldeyer, consisting of the two faucial tonsils, and the pharyngeal and lingual tonsils. The function of the tonsils, so far as known today, is that of lymphatic glands in other parts of the body. Loss of the tonsils causes, so far as known, no measurable functional disturbance.

The faucial tonsil has ten to fifteen crypts lined with squamous epithelium continuous with the epithelium of the throat. Drainage from the tonsils into the throat is poor at best for the reason that the crypts are branching and frequently intercommunicate in the depths of the tonsil. In submerged tonsils some crypts are entirely covered over, and therefore make pernicious drainage.

The lymphatics of the faucial tonsil empty into the superficial cervical glands, while the adenoid lymphatics pass through the post-pharyngeal glands to the deep cervicals and together the superficial and deep cervical lymphatics empty into the thoracic duct. The cervical lymphatics communicate with the lymphatics of the thyroid gland and pleura.

Systemic infections that gain entrance through the tonsils make a list too long to enumerate in this paper. It is conceded that the faucial tonsil is the most frequent portal of entrance of systemic infection. Some relationship between rheumatism and tonsillitis has been recognized for generations. Twenty years ago we read in standard medical works that seventy per cent of cases of tonsillitis have rheumatic diathesis. Streptococcic infection being the chief cause of

tonsillitis, we find as a result associated systemic infections, such as—rheumatism (different forms), nephritis, chorea, endocarditis, pleurisy, neuritis, osteomyelitis, different forms of sepsis, etc.

In these cases the literature is becoming very full and complete. It is known that streptococci, as well as other infections, do pass through the tonsil into the cervical lymphatics, and finally reach the blood-stream. Infection does not pass through the tonsil with normal epithelium, but a pathological change, erosion or ulceration, such as would follow from tonsillitis in any form, acute, subacute, or chronic, offers the necessary break in the epithelium for systemic infection.

Microscopic examination of tonsils removed from rheumatic cases shows in nearly every case hemolytic streptococci in pure or predominating culture,—the organism most prone to attack serous surfaces. Animal inoculations of these cultures produce arthritis, endocarditis, and other infections. Infection and toxins from the tonsil or other foci reaching the general circulation must be eliminated to a degree through the kidneys. Therefore an acute attack of tonsillitis does, in many cases, cause a mild nephritis; recurrent attacks of acute or chronic infective tonsillitis must favor development of graver forms of nephritis. Albuminuria should suggest a causative focal infection; and, first of all, we should think of the tonsil. Nephritis is nearly always a disease secondary to some infective process or the toxins therefrom. Campbell, in a Montreal children's hospital, found in cases requiring operation for tonsils and adenoids that 3.5 per cent of cases had albuminuria and, in most cases, casts.

\*Read before the Hennepin County Medical Society, Feb. 1, 1915.

This mild nephritis usually disappeared in from one to six weeks after operation. Adler noticed that 75 per cent of cases of acute tonsillitis showed albuminurea some time during the first forty-eight hours of the disease. Casts were present in many of these cases. Most all cases of rheumatism in children come from a focal infection of the nose, throat, or mouth, chiefly from the tonsil.

Endocarditis is not uncommon following directly from tonsillitis without the advent of rheumatism, two such cases came under my observation the past winter. Johns Hopkins reports that of routine tonsils removed 16 per cent show tuberculosis by animal inoculations, and 10 per cent histologically. Adenoid tissue also shows a proportionately large percentage.

It is known that tubercular bacilli can pass through the tonsil without leaving any evidence in the tonsil. In many cases of known tubercular tonsil, cervical adenitis disappears after the removal of these tonsils. Pulmonary tuberculosis is not produced directly through tonsillar infection, because there is no lymphatic communication between the tonsil and the lung. There is, however, lymphatic communication with the pleura. This lymphatic connection between the tonsil and the pleura makes clear to me now the old phraseology "pleurisy of rheumatic origin." Patton reports an unusual case of asthma associated with submerged tonsil. Probing the tonsil excited an attack of asthma, removal of the tonsil caused cessation of the asthma. Tonsillitis has seemingly caused inflammation of the thyroid gland among other reported cases. Twice in the same individual, tonsillitis was followed by acute thyroiditis.

Acute infections, such as colds, tonsillitis, influenza, etc., have been mentioned as the exciting cause of an exacerbation of exophthalmic goiter. Improvement has been observed in simple cases of goiter by removal of the tonsils. Billings reports many individuals of middle life showing a slow chronic degenerative process, due to neglected focal infections. A parallel case of slow infective degenerative process may be seen in children. We are all familiar with this class of children suffering from chronic infective tonsils and adenoids,—anemic, irritable, inattentive, deficient mentally, defective hearing, otitis media, perverted appetite, lack of nutrition, and deficient bony frame-work of the maxilla, face, and chest. Any one seeing the condition of such a child before and after operation must be con-

vinced of the benefits when in the vast majority of cases pathological conditions clear up promptly and definitely.

#### CONCLUSIONS

1. The size of the tonsil is of negative importance.
2. A small submerged tonsil with crypts covered over may be most dangerous.
3. In recurrent tonsillitis, regardless of their size, the tonsils should be removed.
4. Tonsils should be removed from tubercular children, even though they appear normal. I would also remove the tonsils from children living in a home with open tuberculosis.
5. A remnant of a tonsil left after incomplete removal when covered by a scar, becomes a most dangerous focus of infection.
6. Cheesy, foul-smelling crypts should be eradicated, or good drainage established by splitting the crypts.
7. Perfectly normal-looking tonsils with no history of tonsillitis are frequently found to exude pus upon pressure.
8. Ragged, spongy tonsils are nearly always infective.
9. In all systemic infections in which diligent and competent search fails to reveal other source of focal infection, the tonsils should be removed.
10. Individuals known to be sensitized to streptococci should have the tonsils removed as a prophylactic measure.

A culture taken from the interior of the tonsil after removal may be made use of for making vaccine for possible future use, which, in some cases, may be of inestimable value.

Focal infection in the tonsil should be treated by complete enucleation. There is no physiological reason why a part of the tonsil should remain.

It is not sufficient to find one focus of infection in a given case, but most important to find all foci of infection. It is therefore necessary in many cases to co-operate with the dental surgeon, the aurist, the rhinologist, and the genito-urinary or other regional specialist. However, to the internist, the pediatricist, or the family physician should fall the responsibility of co-ordinating these facts, dictating the necessary operations and future treatment.

The grouping of streptococcic infections under the name "streptococciosis," as suggested by Dr. Ulrich, I think is very fortunate, and will mate-



rially help to make streptococcic infections more comprehensive.

## ILLUSTRATIVE CASES

1. *Multiple Foci with Chronic Nephritis*.—Miss D., aged 22. This is a case of multiple infective foci. She was sallow of complexion, without ambition, had a chronic right antrum with a devitalized abscessed first upper right molar, an odorous purulent discharge from right nostril. Has sore throat much of the time, with frequent tonsillitis, and one attack of quinsy. Large adenoids, defective hearing, chronic bronchitis, edema under the eyes, a large amount of albumen in the urine, some granular and hyaline casts. This condition has existed for years. Six months after the removal of the adenoids, enucleation of tonsils, extraction of tooth, intranasal drainage of antrum, her hearing is normal, cough very slight, no discharge from antrum, gained fourteen pounds in weight, feels fine. A trace of albumen, off and on.

2. *Rheumatism of Childhood*.—Girl, aged 12. Had tonsillitis twice each winter with a definite attack of

rheumatism following. Three years after operation has had no rheumatism.

3. *Rheumatism of Adult after Incomplete Removal of the Tonsils*.—Mr. G., aged 19. History of tonsillitis for a number of years. One attack of quinsy six years ago. Tonsils partially removed two years ago. Last spring had three attacks of rheumatism definitely associated with tonsillitis. No rheumatism six months after tonsillectomy.

4. *Neurosis*.—Girl, aged 5. Cyclic vomiting once a week for three months. Following operation had mild attacks the two following weeks. The third week was sick for three hours, but no vomiting. Two years afterward, no further trouble.

5. *Chorea*.—Girl, aged 7. No history of tonsillitis. Tonsils slightly larger than normal. Chorea for one and one-half years; very nervous; bad breath. The tonsils after removal showed deposits of foul, cheesy material in both tonsils. Chorea and nervous symptoms increased for three days, then gradually disappeared. No chorea after six weeks. Two and one-half years following, no chorea.

## BOOK NOTICES

A MANUAL OF DISEASES OF THE NOSE, THROAT AND EAR.

By E. B. Gleason, M. D., L. L. D. Third Edition. Published by W. B. Saunders Co., Philadelphia and London, 1914. 590 pages, 223 illustrations. Cloth, \$2.50 net.

The third edition of the above book has been thoroughly revised, and all obsolete methods of diagnosis and treatment have been eliminated. The book is intended primarily for the use of students and general practitioners who desire a clear and concise description of the diseases of the ear, nose and throat. Numerous additions and changes have been made in this last edition, especially in methods of diagnosis and treatment of those diseases and abnormalities of the ear, nose and throat that frequently come under the care of the general practitioner.

The author does not confuse the beginner by giving him a number of operations that differ only in technic, but describes in a plain and concise manner only the technic, which, in the experience of the author, is the simplest, easiest, and gives the best result in the largest proportion of cases. As stated in the preface, more space is given to diagnosis and treatment than to more

rare and difficult operations that the beginner should not do.

The book is illustrated with necessary illustrations and contains formulæ of prescriptions commonly used. The volume is recommended as a text-book for students, and as a handy reference book for general practitioners.

—MURRAY.

DIFFERENTIAL DIAGNOSIS. Vol. II. By Richard C. Cabot. W. B. Saunders Co., 1914. 700 pages. Price, \$5.50.

It has been a pleasure to review Dr. Cabot's second volume. The scheme followed is exactly the same as that in volume one.

Nineteen presenting symptoms have been selected and analyzed. These, with the aid of diagrams, charts, and illustrations, are made clear by the explanations and discussions. Tumors; Vertigo; Diarrhea; Dyspepsia; Hematemesis; Glands; Swelling of the Face; Hemoptysis; Edema of Legs; Frequent Micturition and Polyuria; Fainting; Hoarseness; Pallor; Swelling of the Arms; Delirium; Palpitation and Arrhythmia; Tremor; Ascites and Abdominal Enlargement, are the symptom groups included.

As before, a general discussion opens each chapter, stating the frequency of occurrence of the symptom, and various pitfalls are noted. There are 317 cases in all, and the reader can recommend their careful study and consideration.

—PEPPARD.

# THE JOURNAL-LANCET

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## THE ANTI-NARCOTIC LAW

Within the past few days the effects of the Harrison Act have attracted a good deal of attention in many cities. Doubtless the same thing applies to the country districts as well, but we hear more about it in the larger cities.

If the newspaper reports are to be relied upon it is quite probable that an occasional suicide of an habitu , who is either mentally or financially depressed, has occurred. Failing in their efforts to obtain sufficient drugs to make them comfortable, and not knowing where to apply for relief, they have sought self destruction. Doubtless, some of these unfortunates have been addicted to the drug for a great many years and the fear, exhaustion, and confusion has been more than their unstable brains could withstand. On the other hand, a number have recognized the necessity of treatment for relief from the drug habit, and have applied to private and public hospitals for care. Some of them have been very hopeful cases, but the majority are like the majority of inebriates; they feel no responsibility and treat the matter very lightly. They have evidently made up their minds that there is but one thing to do, and that is stop taking the drug. They are more or less philosophical about it, and are probably, in themselves, tired of the habit. Too much sympathy need not be

expended upon the majority of drug users. Most of them have sufficient will power and determination to get along without a narcotic, and sometimes a very little assistance, with a little encouragement, is all that is necessary.

Doubtless many of the sanatoria in the country are reaping the benefit from those who are fearful and frightened about the after effects of drugs. Unfortunately a great many, who are much reduced physically, and have depended more upon drugs than food for sustenance, will take a long time to recover. The average case, however, is a comparatively simple proposition to deal with. Given a man or woman, of fair health, with fair nutrition, and without the disagreeable nausea, vomiting, and diarrhea that occasionally is found in these cases, there is no harm in the rapid or complete withdrawal of the drug when they enter the hospital. These cases can safely be treated with a hot bath, which acts as a sedative, quieting the mental and physical excitement and inducing sleep. The introduction of foods is not difficult, most of them are quite ready to take food in small quantities at frequent intervals.

Some of the habitu s must have a substitute for their heroin, morphine, or whatever drug they use, and for this, strychnia, with small doses of atropin, may be used. The average patient will take a twentieth grain of strychnia, gradually increased up to a tenth of a grain, hypodermically, three or four times in twenty-four hours for the first few days, and then the dose may be gradually reduced and finally withdrawn. Atropin may be given simultaneously in one two-hundredth to one one-hundredth of a grain, and then gradually withdrawn. Laxatives are not necessary as most of these people have diarrhea, but a good dose of castor oil, as soon as they can retain it, is very helpful to the digestive tract. Forced feeding is an essential remedy, together with enforced rest. The usual time for suffering from the sudden withdrawal of the drug is about forty-eight hours, some cases may be protracted to seventy-two hours, but not many. A helpful suggestion from the physician goes a long way towards restoring confidence. A substitution of other drugs, sedatives of any kind like veronal, trional, and sulfonal, is ill advised. Sometimes a dose of bromide of sodium, fifty to one hundred grains, given by a long rectal tube in the colon, is helpful, but even after a few doses the patient usually refuses or rejects the colonic medication.

The probabilities are that the majority of these people will get over their habit, as the stringency of the Harrison Act makes it so difficult for any one but a physician to secure any of these drugs, derivatives from opium or coca.

The greatest burden will lie upon the old habitué who has been addicted to the habit for from ten to forty years, in moderate doses, as the habitual drinker takes small doses of liquor. These old people should never be deprived of their stimulant. For instance, a woman of sixty-five or seventy years, who has taken opium in some form for many years, should not be cut off, as its withdrawal would mean immediate death. Arrangements can be made between the physician and the druggist to keep up a reasonable supply, as the Harrison Act evidently does not contemplate the suffering of the old habitué. The average druggist will honor the prescription of the doctor, particularly if the situation is explained to him.

The greatest benefits that arise from the Harrison Act are the cutting off of the unscrupulous peddler of the drug, and so far, the vicious peddler among the unfortunates has kept pretty well under cover. A fine of two thousand dollars and a prison sentence does not seem very inviting, even taking into consideration the profit obtained from the sale of any habit-forming drug.

In Hennepin County a man was recently tried on the ground that he supplied a young fellow with heroin, and later with morphine, and, after getting him under his control, induced him to participate in several holdups. The State attempted to prove that this man was unduly influenced by the drug seller. Unfortunately, at the trial the witnesses were obliged to admit that all habitués are unreliable in their statements and, although the drug had been withdrawn and they had not had any for some weeks, they are still not to be wholly depended upon. The case was well presented, and had the State known that during the time of freedom from the drug taking the man was reasonably reliable in his statements, they would undoubtedly have secured a conviction. The jury disagreed and the case is to come up later.

If some of these drug peddlers could be sent to the penitentiary for two or three years it would do much to impress them with the sincerity of the Harrison Act, and it would discourage unfortunate and unstable individuals from beginning the drug habit. Until the Harrison Act is thoroughly understood and in good

working order, it is wise for the physician to keep pretty close track of the opiates that he prescribes or leaves with his patients. If every physician would write a prescription for any derivative of opium or coca leaves, in the manner prescribed by law, this would satisfy the government inspector. It is questionable how far a man may go in leaving tablets containing these various preparations with patients or nurses. The supposition is that he may continue his practice as he did before, using opiates when necessary, but with discernment. But one should always be prepared for the inspection of his books and prescriptions in order to safeguard his reputation and practice.

One very unfortunate feature of the whole situation is that the doctors, and there are many of them, who are addicted to the drug habit themselves, can, by their prescriptions, secure an unlimited amount of drugs for their personal use. This feature, undoubtedly, will receive attention in due time, and doubtless the druggist will be given to understand that an unusual and unnecessary supply of these drugs shall not be given to one physician. But in the large cities, a doctor may go from one drug store to another, write his prescription and stock up, and thus secure his own personal comfort, or discomfort, as the case probably is better defined.

One feature has been brought out since the law has come into effect, and that is that the users of heroin are accustomed to snuffing it up their noses, after powdering the pellets. This seems rather a strange way of employing heroin, but as this method has been described by the users of the drug, they must get a good deal of satisfaction from the repeated insufflation of the powder. It has not been known that heroin was used that way. Enormous quantities of the drug are taken during the twenty-four hours, and one who is not a user of the drug cannot appreciate the agony and suffering these people must go through when they are suddenly deprived of their usual dose. But in due time they will cease the use of these drugs, and, doubtless, something else will come up to take their place, for it seems almost incomprehensible that the world is going to be entirely relieved from the drug habit. At an early date some demon, in the form of a chemist, will find a substitute that will satisfy the craving of the deficient.

In the meantime it is the doctor's business to help the working out of the law, and make it as strong as possible.



## MISCELLANY

### FIFTY-ONE YEARS A PHYSICIAN

At the February meeting of the Ninth District Medical Society (South Dakota), the fifty-first anniversary of Dr. F. L. Babcock's graduation from medical college was celebrated. It had been intended to celebrate the fiftieth anniversary, but at that time Dr. Babcock was too critically ill to participate.

A resolution was passed that Dr. Babcock's remarks be published in *THE JOURNAL-LANCET*.

Dr. Babcock was elected to honorary membership in the Ninth District Medical Society, for life, without dues.

Dr. Babcock's remarks follow:

My Brethren of the Medical Profession:

I wish it were in my power to utter words conveying to you my great appreciation for being made your guest of honor for this evening. Few of our profession have been permitted to serve it for more than half a century and few have been honored with such kindness as you have extended to me tonight, but I hope and pray that all of you may be spared to serve your profession for more than half a century, and that through life you may have such good friends as surround me now.

I cannot speak to you at length, yet I feel under obligation to give you a brief sketch of my professional life. I was born in Dimock, Pa., on May 24, 1838, and lived there until 1857. I then went to Rockford, Ill., crossed the plains to Denver, Colo., in the spring of 1859, and returned to Rockford the same summer. I commenced the study of medicine under Dr. N. E. Chandler. The law of Illinois at that time required three years' study under a preceptor and attendance in a medical college for two years. After being with my preceptor over two years I enlisted as a private soldier on the second of June, 1862, in the 67th regiment of Illinois Volunteer Infantry, for three months. I served over four months, during a part of which time I was in Camp Douglas, in Chicago, guarding Confederate prisoners.

A short time after I arrived in Chicago, measles broke out in the camp and I was detailed to perform service in the measles tents, though I had not yet attended a medical college. In September, 1862, we went to Vicksburg, Miss., to exchange five thousand Confederate prisoners.

We were put on board boats at Cairo, Ill. I was detailed to the hospital boat during the entire trip. The prisoners were exchanged on the 17th of September, 1862. Col. James A. George was one of the prisoners.

Returning to Chicago in October, I immediately went to the Rush Medical College and took my first year's course. In the spring of 1863 I went home and continued my studies with Dr. Chandler until the college opened in the fall of that year, when I again entered Rush Medical College. On January 4, 1864, I received my M. D. diploma, so that, including today, I have been a graduate physician fifty-one years and one month.

On the 9th of March, 1864, I received my first contract as acting assistant surgeon in the United States Volunteer Army and went to Davis Bend, Miss., for service, that being about twenty-eight miles below Vicksburg. In October, 1865, I received my appointment as assistant surgeon to the 64th United States Colored Infantry, but was taken sick and could not be mustered in. On November 9, 1864, I went home; got better, and on the 4th of April, 1865, I took my second contract with the United States as assistant army surgeon. On February 23, 1865, I was put in charge of the President Island Army Hospital at Memphis, Tenn. I was there when our President, Abraham Lincoln, was assassinated, and was there when the steamboat *Sultana*, loaded with discharged United States soldiers, was mysteriously blown up. In July, 1865, I was sent to Pine Bluffs, Ark., in charge of the sick soldiers of the 79th United States Colored Infantry, and served there until the close of the war.

I went to Omaha, Neb., in March, 1866. There was not a railroad running into the city at that time. I was made a member of the Omaha Medical Society, and practiced in that city nearly ten years. I left Omaha on December 23, 1875, and arrived in Cheyenne the next day. I remained there until about the first of August, and arrived in Deadwood, August 8, 1876, and have remained here ever since, continuously practicing my profession.

My practice has extended over the entire Black Hills, from Hot Springs on the south to Stoneville, now Alzada, Mont., on the north; from Sundance, Wyo., on the west to a score of miles beyond Rapid City on the east. I have made trips in the winter and in the summer, through storm and through sunshine, over all parts

of the Black Hills, and have seen much suffering, pain, sickness; and death by disease, by accident, and at the hands of the vigilantes, and by hanging, and I was once called upon to stand under the scaffold and make certificate of a death by execution under sentence of the law.

I have been called to attend upon all classes of people,—the preacher and the priest, the law-abiding citizen and the felon, and upon mothers and their babes. I have been called into the homes of the well-to-do and to those living in rude shacks and log cabins, and was once called upon to perform a surgical operation in a saw mill, having for my table a board on the carrier used to carry logs to the mill. I amputated the patient's arm, having only a rusty wash pan full of hot water with which to cleanse the parts, and yet the arm healed up by first intention and the patient was out of his house within twenty-four hours. I was called upon to see another patient who was shot through the lungs and arm. He was in a one-room log cabin, having a fireplace in one corner, and I was given some warm water in a rusty can with which to cleanse the wound; yet he got well.

There were many other cases which I was compelled to treat under similar conditions. Sometimes I had to take pieces of board and make them into splints for all kinds of fractures. I call your attention to these matters, my brethren, that you may see how different were the circumstances under which physicians and surgeons had to operate in this community thirty-five years ago, that you may compare them with the conveniences and instrumentalities we have today.

When I came here in August, 1876, there were a number of smallpox cases. One of the doctors called it poison oak, others did not know what it was, but I contended it was surely smallpox. Capt. Seth Bullock and myself were appointed to find a location for the hospital. We first looked over the ground and thought we could build it on the hill about where Col. Parker's house stood. We got a load of lumber and started up Centennial avenue, but were stopped by the marshal, about where Mr. Ayers' house now stands, and were told by the patients that they would not go up there to be killed by the Indians. We then decided upon a location on the side hill near where the Fourth ward school-house now stands. The hillside was covered with small pines. A small place was cleared and the frame of the building put up. That night it

was mysteriously torn down and the lumber thrown down the hill. We then located it in Spruce Gulch about opposite the White Rocks, and that was the first hospital in the Black Hills.

Afterwards there were two slaughter houses erected in the gulch, and some time after they were erected, certain people thought the water of Kidney Springs was a sure cure for all kidney troubles, and began to peddle the water. The slaughter houses have been removed for some years and since their removal we hear but little about the wonderful curative powers of Kidney Springs.

There are many reminiscences which you might be pleased to hear, and which, with some reflection, I might recall, but will not attempt to do so now.

A year ago, as you all know, I was severely ill and in delirium, and thought I was going to die until about twelve o'clock, noon, on Easter Sunday, but as you see I am here today and better in many ways than I have been for several years, for which I am indebted to you, my brethren, by reason of your kindness and attendance through my illness, and to you all, and each of you, I extend my best wishes for your good health, your future success and prosperity, and thank you all with my whole heart for your kindness to me here tonight.

Fraternally,

L. F. BABCOCK, M. D.

Deadwood, S. D., Feb. 4, 1915.

Dr. Babcock was elected an honorary member of the Black Hills District Medical Society, for life, without dues.

F. E. ASHCROFT, M. D.,

Secretary pro tempore.

## REPORTS OF SOCIETIES

### MINNESOTA ACADEMY OF MEDICINE

The regular monthly meeting was held at the Leamington Hotel, Minneapolis, March 3rd.

The meeting was called to order by the president, Dr. Todd.

There being four vacancies in the membership, two in Minneapolis and two in St. Paul, it was decided, when put to vote, that two of these be filled at this time, one for each city.

A ballot for choice was taken which resulted in the selection of Dr. Lerche and Dr. Owre. A formal vote followed and both were elected.

The election to honorary membership of Dr.

E. P. Lyon, dean of the Medical School, was also effected by vote.

Dr. John F. Fulton, a charter member and one of the organizers of the Academy, was proposed for membership on the honorary list. Put to a vote, he was elected without opposition.

Two new names were presented at this meeting. That of Dr. R. E. Farr, Minneapolis, was proposed by Drs. Gustave Schwyzer, H. Warren Little, A. W. Abbott, and A. T. Mann; and that of Dr. Arthur Strachauer, Minneapolis, was recommended by Drs. J. E. Moore, Franklin R. Wright, and J. F. Corbett.

Through an oversight the name of Dr. Theodore Bratrud, of Warren, Minnesota, for associate membership, was not voted upon. His nomination has been approved by the executive committee and should be voted upon by the Academy at an early date.

While the balloting was going on several case reports were made. Dr. Gustave Schwyzer related the case of an operation on an ulcer of the stomach.

Dr. Frank Wright told of a peculiar discrepancy in the Wassermann reaction that his attention had recently been called to, where one laboratory reported the reaction positive and another reported it to be negative. The length of time after the blood was drawn seemed to account for the variation. Dr. Wright was of the opinion that it should not stand over night before testing for the reaction. Others contended that so short a delay made no essential difference, especially if the specimen were kept cool.

Dr. Corbett recounted three cases of novocain poisoning which had stimulated him to make animal experimentation, using ether as an antidote. He pronounced it a specific.

Several others made interesting reports, but no accurate notes have been secured by the secretary.

The first essay of the evening was read by Dr. J. S. White, who had chosen for his thesis the subject of "Submucous Resection of the Nasal Septum." The only rhinologist present was Dr. Todd so he alone discussed Dr. White's paper.

Dr. E. S. Judd, of Rochester, presented a paper on "Subdiaphragmatic Abscess" which was illuminated by lantern projections. Mr. Henry Morris, of the Medical School, manipulating the stereopticon. Many of the surgeons present talked along the line of Dr. Judd's subject following its presentation, Dr. Judd closing the discussion.

FRED E. LEAVITT, M. D., Secretary.

## THE MINNESOTA NEUROLOGICAL SOCIETY

The regular meeting of the Society was held at the Minnesota Club, St. Paul, February 15th.

Dr. Haldor Sneve discussed Freud's Theory of Treatment.

Dr. E. M. Hammes presented a case of Hunt's hand. Syndrome as follows:

A female; age 22 years; single; stenographer. Family history negative. Personal history: usual diseases of childhood.

Present complaint began about July 1, 1914, with pain and soreness in the right elbow joint. This grew worse for a few weeks and gradually subsided. About August 1, 1914, the patient noticed an atrophy of the thenar region of the right hand, also a numbness in the fingers supplied by the ulnar nerve. This gradually subsided and is only present now when her hand becomes cold.

Examination made January 24, 1915, showed nervous system normal throughout. There is a marked atrophy of all the muscles of the right hand extending for two inches above the wrist joint. There is a corresponding impairment of muscle strength. There was some tactile impairment along the outer surface of the right hand and little finger. Sensation was normal otherwise. There was no muscular twitching. The measurements of the forearm and upper arm are the same on both sides.

This condition grew worse for about two months, but has been stationary since October, 1914. The urine was negative. The blood was normal, and the Wassermann in the blood was negative. A lumbar puncture was refused.

For several months before the onset of the trouble, she worked unusually hard at the typewriter.

This condition strongly suggests the Hunt hand syndrome which Dana has described recently.

The following cases of focal disease of the brain were presented by Dr. C. R. Ball:

Case No. 1. Mr. G. S.; seen in consultation in October, 1913; age 54; family history, negative; denies lues; potator; always has been an unusually strong and healthy man; eight years before, while under the influence of liquor had fallen downstairs and received a severe contusion on his head; not unconscious at time, but somewhat dazed for several hours; apparently no other ill effects; about nine months before I saw him, began to lose strength in his right leg, paralysis gradually extended to right arm, slowly increasing in degree in both arm and leg; some headache, chiefly in back of head, not present all the time or ever very severe in character; about once in two or three weeks epileptic seizures, general in character and of great severity. These attacks appeared to be increasing in frequency. Considerable nervousness and mental depression; some mental confusion for several days after a seizure. Tendency to cry easily.

*Status presens:* Patient was confined to bed; general nutrition fair; heart, lungs and urine, normal; normal temperature; was able to move right leg in bed fairly well; right arm practically helpless; right side of face not innervated as well as left side; tongue protruded



straight; speech good; eyesight good; no nystagmus or paralysis of eye muscles; optic nerves normal; hearing good; superficial reflexes on right side absent; reflexes more lively on right side than on the left. Babinski on right side; no Kernig; Wassermann reaction in blood and spinal fluid, negative; no increase of either globulin or lymphocytes in spinal fluid.

*Most probable diagnosis:* Brain tumor situated on left side of brain. Operation was advised and accepted with the understanding that it offered a fair opportunity for the relief of the epileptic attacks. The motor area on the left side was located by the method of Krönlein; a bone flap embracing this area was made and the brain exposed. As is not unusual in brain operations, no tumor was found but microscopically the dura and brain substance did not present a normal appearance. By means of a faradic battery and a small steel pointed electrode, the motor areas corresponding to the face, arm and leg were located exactly and the cortex in this region, to the depth of a quarter of an inch, was removed. The dura was then closed and the bone flap put back into place. For the first week or two after operation, patient's right side was entirely paralyzed, then motion began slowly to return; patient made a good recovery after the operation. In October, of this year, an inquiry concerning this patient resulted in the information that he was in excellent health and spirits, was able to walk quite well; had a fair degree of use of the right arm and leg and was entirely free from epileptic seizures.

This case is chiefly instructive because, in spite of the fact that nothing was found of a tumorous nature, the clipping out of the cortex gave the patient the thing he most desired,—freedom from his attacks of epilepsy.

Case No. 2. March 4, 1912. Mrs. M. W.; seen in consultation March 4, 1912; age 52; German; has had nine children; all living. Present trouble began about one year ago with a severe epileptic attack in which patient fell to the ground and was unconscious for more than an hour; has had, in all, two attacks of general epileptic character, frequent attacks, however, of the Jacksonian type of epilepsy, beginning with pains and jerking in the left thumb and index finger which then extended up the arm and within a period of a few seconds involved the whole left side. The twitching in these minor attacks did not extend to the other side nor did they affect the consciousness. At the time I saw this patient she was having two or three of these attacks every week, lasting from one to four or five minutes. Patient did not complain of headache or dizziness; mental condition, excellent, except some loss of memory; appetite and sleep, good; no tenderness to percussion over any part of the skull.

*Status presens:* Patient, small woman, rather thin, but in good state of nutrition. There was nothing particular to record with reference to the heart, lungs or urine; temperature, normal; station, good; deep and superficial reflexes present in both upper and lower extremities; muscular strength about equal on both sides; no Babinski; disturbances of sensation, for all qualities, on entire left side more marked in arm and hand; movements of left arm and hand, clumsy; astereognosis in left hand. Patient was unable to pick up any small object from the bed or table without looking; she could not detect it by the feel; left pupil larger than right; both re-act to light and accommodation; eye backgrounds normal; serum reaction in blood, negative.

*Diagnosis:* Tumor of right side of brain; probably involving the posterior central convolution, because of almost entire absence of pain it was thought to be infiltrating in character. Operation was advised, to which patient consented. The fissure of Rolando was located externally by Krönlein's method. A bone flap was made over this region. The dura was adherent in many places to this flap. The inner surface of the flap itself was eaten into in different places. The dura, also, adjacent to the bone flap was pretty well riddled by the disease. On exposing the brain surface more fully a large flat tumor, covering an area the size of the palm of one's hand and firmly adherent to the brain tissue beneath it was seen. The tumor was soft in consistence and when touched showed an unusual tendency to bleed. Because of the large area covered by it, the firmness of its adherence to the brain cortex, its inclination to bleed when manipulated, and its evidently malignant character, it was thought best not to attempt to remove it. Microscopical sections of small portions of the tumor made afterwards showed it to be a sarcoma. The parts of the bone flap most affected were removed and the wound closed. The patient made a good recovery after operation. Inquiry in regard to patient one year later brought the information that her condition was about the same as it had been; inquiry at the end of two years after the operation, that she had recently died.

There are several points of interest in this case: first, the absence of headache, the freedom from pain on percussion over the diseased area although the bone in some places was pretty well eaten through, the good mental and physical condition of the patient, the length of time she lived with a brain growth of so large and destructive a character, and finally the perfect agreement of the localizing or focal symptoms with the location of the tumor.

Case No. 3. Mr. W. C.; seen in consultation September 14, 1914; Swede; age 60; family history, good; children living and well; no history of lues; temperate in use of alcohol; patient says he has always been in excellent health; is unable to remember any severe illness; six weeks before date of consulting me he was apparently perfectly well, working on his farm, as usual, when he was suddenly seized with a severe convulsion, following which he was unconscious for about two hours, was confined in bed for several days after this attack, after which he got up and went around as usual. In two weeks he had another convulsion, similar to the first, after this attack he noticed an awkwardness and clumsiness in his left arm and leg; at the present time this condition has increased to such an extent that the left side is entirely helpless. Patient has had no more attacks of a general convulsive nature but has frequent attacks limited to side, beginning in the toes of left foot and gradually involving the whole side. These attacks occur several times a day; any manipulation of left leg is sufficient to bring on a convulsive attack in the foot and leg. Mental condition rather confused and rapidly growing worse. Complains of considerable pain in head, chiefly located in back of the neck. Occasional involuntarys of both urine and bowels.

*Physical examination:* A fairly well nourished and well preserved man showing evidence of hard work; pulse irregular; slight heart murmur heard best over area of aortic valves; lungs, good; urine, no albumin or sugar; temperature, normal. An examination of the gums showed a marked pyorrhea.

Percussion over head did not reveal any particular points of tenderness. The whole head seemed somewhat sensitive to percussion; superficial reflexes on left side, absent; deep reflexes, increased, ankle clonus and Babinski present on left side, mild optic neuritis on both sides; no paralysis of eye muscles, no nystagmus; no cranial nerve paralysis; the most marked loss of muscle sense in left arm and leg; had no idea where his leg was and when asked to close his eyes and touch his nose, was absolutely unable to find his face; astereognosis in left hand; sense of touch and pain, however, was retained.

*Diagnosis:* Probable brain tumor or cyst on right side of brain. Patient was operated on October 3. A bone flap was made to expose the upper part of the fissure of Rolando and render accessible the area more adjacent to the posterior central convolution than the anterior. The brain cortex in which both the muscle sense and astereognosis is located lies in this region. In freeing the dura, which was adherent to the brain surface in several places, a little pus was noticed oozing out of the opening. The path of the pus was traced to a rather large abscess cavity occupying the upper and posterior part of the parietal lobe and situated about  $\frac{1}{4}$ -inch below the surface of the cortex; about two ounces of a thick yellowish white pus were drained out of this cavity. The cavity was gently packed and the wound closed. The patient recovered well from the shock of the operation but died on the fifth day from aseptic meningitis, indicating that the pus was of a virulent character. The puzzling question in this case was the origin of this abscess and the length of time it had existed. Could the pyorrhea have been its source or was some other point of infection somewhere else in the body the cause of it? It illustrates, also, the possibility of brain abscess in any case where brain tumor is suspected and the importance of always making a white blood count in such cases before operation.

Case No. 4. Mr. W. H. B.; was seen in consultation October 10, 1914; German; 48 years old; married; family history, negative; habits, temperate; no history of lues; has never been sick, except when a child had measles and scarlet fever; when eleven years old was kicked on the head, in the left parietal region, by a horse; he was not unconscious, but his scalp was cut open; no physician was consulted, but his mother dressed the wound. Patient says, it discharged pus for a long time. A horse-shoe shaped scar is plainly to be seen directly over the motor area, on the left side, as a result of this accident. On July 20, of this year, patient tripped and fell upon a cement floor striking his shoulder and arm on the left side, but not striking his head. The fall jarred his whole body. Two weeks after this fall, he felt pain in his right foot and toes and some weakness in right leg, which has gradually increased until the whole right side has become involved. At the time I first saw patient he was unable to walk without aid because of the weakness in his right leg.

*Physical examination:* Negative; urinalysis negative; hemoglobin, 92; blood pressure, 135; Wassermann in blood, negative; spinal fluid, clear; pressure much increased; Nonne lymphocytes, normal; colloidal gold curve, negative; white blood count, 10,500.

Pupils equal and re-act to light and accommodation; no nystagmus, tremor, Babinski, Romberg, Kernig or

sensory disturbance; abdominal reflexes normal, tendon reflexes present and apparently normal on both sides; mental condition, good.

Patient was put in the hospital and in spite of negative reaction was given specific treatment; he grew steadily worse so that October 12 paralysis on right side was absolute; he was unable to make the slightest movement; his mental condition was now very much dulled and he was delirious at times.

He was operated on October 14. The motor cortex was located by Krönlein's method and a large bone flap was made, exposing this area. The dura was injected and bulging and there was no pulsation. On opening the dura, a large cyst was seen situated between the dura and brain cortex and pressing the brain substance down into the cranial cavity; the cyst contained a bloody fluid and several fresh looking blood clots. The walls of the cyst were as thick and tough as the dura itself, indicating that it had evidently been there for a long time. The walls of the cyst were destroyed as well as possible, the cavity packed and the wound closed. The first few days after the operation the patient had several convulsive seizures, general in character. It was noticed on the day following the operation that he used his right arm and leg freely. Patient made a good recovery and in a recent letter to me, stated that he was back at work and feeling fine.

This case is an unusually instructive one and viewed in the light of all the facts, explanation becomes easy. The kick by the horse was the exciting cause for the beginning of a cyst. The cyst was an old one and perhaps was already starting to degenerate, the fall in July caused it to bleed and every little bump or jar increased the bleeding. It is especially interesting in showing the possibilities for a remote effect from apparently trifling head injuries.

Case No. 5. Miss M. S.; age 29; was seen in consultation December 5, 1913; teacher in public schools; family history, good; personal history and past history, not significant; no history of lues; present trouble started with a buzzing and gradually increasing deafness in right ear seven years ago; for the past two months she has had occasional attacks of vomiting, projectile in nature. She was able to continue, however, with her teaching up to within a few days of the time of consulting me. She now complains of headache, which she has had for some time, and which is particularly severe in the back part of her head and neck; coughing or sneezing increases this pain; the ride on the train aggravated it greatly.

Patient's general state of nutrition is good; mental condition, good; heart and lungs negative; station poor with tendency to fall towards the right side,—in walking she, also, has a tendency to fall towards the right and is unsteady in gait; pupils regular, equal and react to light and accommodation; horizontal nystagmus; areflexia in right eye; left eye, normal; diminished sensation on right side of face and tongue but no other evidence of sensory disturbance; choked discs on both sides; slight involencies of facial nerve on right side; involvement of auditory nerve on same side; no other cranial nerve involvement; deep reflexes, normal; there was marked loss of muscle sense in the right arm and leg; supination and pronation of right arm and movements of the fingers of right hand showed adiadokokinesis.



The head was not particularly tender to percussion in any one place.

*Diagnosis:* Slow growing tumor in right cerebellum; pontine angle.

Patient was operated on the latter part of December, 1913. A growth the size of an English walnut was found and removed in the right lateral recess. The growth was of a sarcomatous nature. On December 14, 1914, a letter from her physician stated that patient came alone to his office two days before, and walked up a long flight of stairs. Her walk was as yet unsteady. There was still some difficulty in the use of the right hand. The headaches have entirely disappeared. The eye backgrounds are normal; vision, 20/20. The patient has steadily improved since her operation although the improvement in the last three months has been slight.

Case No. 6. Mr. G. S.; seen in consultation October 5, 1914; Jew; age 40; married; family history, unimportant; three children, living and well; no history of miscarriages; temperate in habits; has never had any serious illness or accidents; no venereal infection; patient was perfectly well until in January last when he began to suffer with headache; this headache has gradually increased in constancy and severity. At present the pain is of an agonizing character and a full dose of morphine, hypodermically, does not relieve it; he has considerable trouble with his digestion, a most obstinate constipation and vomits every day; patient is of the hysterical type; mind is clear except when headache is particularly severe, then he is confused; pupils equal and regular; react to light and accommodation; no nystagmus or paralysis of eye muscles; double choked discs; swelling of optic nerve head from 3 to  $3\frac{1}{2}$  millimeters; retinal hemorrhages; considerable rigidity of neck; no cranial nerve involvement; no paralysis of upper or lower extremity; deep and superficial reflexes present; no sensory disturbances; when patient walks, he throws his body and head back and legs forward; would fall backward unless supported; becomes dizzy on changing position; hemoglobin, 79; white cells, 14,300; urinalysis, negative; blood Wassermann, negative; spinal fluid examinations, negative, except for great increase of intraspinal pressure; vigorous specific treatment did not make any improvement in patient's condition.

*Diagnosis:* Brain tumor probably somewhere in the cerebellar region. The reasons for locating the growth in this region were the high degree of choked discs, the intense character of the pain, the rigidity of the muscles of the neck; the vertigo felt on changing the position of the head and the asynergia of the entire body, as shown in the patient's walk.

On October 17 a suboccipital decompression was made on the patient, exposing freely both lobes of the cerebellum, and, also, medulla. The dura was very tense over the cerebellum and when opened there was a discharge of serous-like fluid. The consistency of the cerebellum seemed everywhere the same; the right and left cerebellar pontine spaces were examined and a trocar thrust into the cerebellar lobes in different places but nothing abnormal was recognized. The wound was closed without drainage.

Patient made an uninterrupted recovery. The relief from his intense pain was immediate and continuous up to the present time.

I saw this patient last on February 2. He then appeared to be in perfect health and weighed more than he ever had.

An examination of the eye backgrounds two weeks after the operation, revealed a complete disappearance of the choked discs and swelling of the optic nerves. The immediate and complete relief of pressure symptoms, as a result of the decompression, would point strongly to a posterior cranial fossa tumor, although none was found.

An analysis of the six cases presented shows only one in which a complete recovery is possible; the case with the brain cyst. The case with the brain abscess died a few days after the operation. The case with a critical growth of a malignant nature was neither benefited nor made worse by the operation. The patient with the slow growing tumor of the cerebellar pontine angle has been almost completely relieved up to the present time but a return of the growth will probably occur. The other two patients, one in whom the motor cortex was removed and the other where an extensive decompression was made, are instructive for the reason although no tumor was found, their distressing symptoms promptly and entirely disappeared. It is also interesting to note that the two cases with direct cortical irritation had epileptic attacks of both a Jacksonian and general character, the disease in each instance first manifesting itself in a severe general epileptic seizure.

A. W. MORRISON, M. D.,

Secretary.

## NEWS ITEMS

The Peabody Hospital, at Webster, S. D., is to be enlarged.

Dr. T. W. Hovorka, formerly of Glencoe, has located in Albany.

Dr. R. O. Leavenworth, of Minneapolis, has moved to Glencoe.

Dr. Carl J. Pinard, of Munroe, S. D., has located in Gary, S. D.

Over \$7,100 has been raised for the proposed Lake City hospital.

Dr. I. P. Hiebert, formerly of Altona, Manitoba, has located in Minneapolis.

Dr. C. O. Straub, of Minneapolis, died at his home March 19th, of pneumonia.

Dr. Nils Myklestad, of Williston, N. D., is taking postgraduate work in Chicago.

Dr. D. C. Darrow, of Moorhead, is spending some time in Philadelphia, and later he will visit the Exposition.

Dr. A. B. Ancker, of the St. Paul City and County Hospital, is taking a boat trip from New York to Panama.



Dr. C. L. Herbert, of Des Moines, Iowa, has purchased the practice of Dr. S. W. Bailey, of Dickinson, N. D.

The new hospital for the Indians is to be built in Cloquet instead of on the reservation, as originally planned.

Dr. P. C. Davidson has moved from Clara City to Detroit, after spending the past year in postgraduate work in New York and abroad.

The new Sidney Hospital, at Sydney, Mont., has just been completed at a cost of \$32,000. It is a modern, reinforced concrete building with thirty beds.

Dr. E. S. Muir, mayor of Winona, has recently been operated upon in a Minneapolis hospital, and though the operation was very serious, he is now out of danger.

All boys who take part in the baseball games between the grade school teams of St. Paul must undergo a physical examination by Dr. E. A. Meyerding, school physician.

Sir George Turner, who has done much toward checking many of the pests and ravages in South Africa, has given up his life in an effort to discover a cure for leprosy.

A bill is before the Minnesota Legislature which calls for an increase in salary from \$10 to \$20 per day for the members of the State Board of Medical Examiners while in session.

Dr. W. H. Magie delivered an address on "Surgery of the Stomach" at the last regular meeting of the St. Louis County Medical Society. About thirty members were present.

The monthly meeting of the Hennepin County Medical Society will be held Monday, April 5th, at 7:45 P. M. Clinical cases will be presented by Drs. J. A. Watson and J. Frank Corbett.

The organization of a St. Louis County Public Health Association is being agitated by the Duluth city health department. The object of such an association would be to promote health in the county by control of epidemics, medical supervision of schools, instruction of mothers in the

care of infants, and the improvement of every form of health supervision by lectures, exhibits, school instruction, and co-operation with rural and town organizations.

#### EQUIPMENT FOR SALE

Full equipment of eye, ear, nose and throat instruments, trial case, Pyncheon cabinet (golden oak finish), specialist chair, stool with receptacle, etc. Property of late Dr. C. B. Powell, Bemidji, Minn. Address Mrs. C. B. Powell, Bemidji, Minn.

#### PHYSICIAN WANTED

To locate in a thriving North Dakota town. For full information correspond with Andrew Erickson, Makote, N. D.

#### PRACTICE FOR SALE

An established practice in a town of 2,000 for sale for the price of the office outfit. If you mean business, write at once. Address 205, care of this office.

#### SANITARIUM FOR SALE

A new, strictly modern, 50-bed sanitarium with three acres of land on a beautiful lake, located near the Twin Cities, for sale cheap. Address 206, care of this office.

#### PRACTICE FOR SALE

Located in eastern North Dakota, in a good modern town, good farming country surrounding. Practice pays \$3,600 a year. No real estate. Price reasonable. Address 210, care of this office.

#### PARTNER WANTED

In large contract mining practice on Iron Range, Minnesota. Own modern hospital and best contracts; mines good for 75 years. Cash collections over \$10,000 annually. Must be good all-around physician and surgeon. Address 209, care this office.

#### ASSISTANT SUPERINTENDENT WANTED FOR A LARGE GENERAL HOSPITAL

To a graduate of medicine, wishing to secure a thorough training in institutional work, this is an exceptional opportunity. To avoid unnecessary correspondence, answer in own handwriting, giving age, college, experience, whether married or single, and other necessary particulars. Correspondence confidential if requested. Address 208, care of this office.



## The Battle Creek Method of Treating Diabetes

Few diseases yield less satisfactory results to medical treatment under ordinary conditions than does diabetes.

The physician's prescription may be suited to the indications, but the patient is rarely able to follow it. He has no means of determining the calorific value of his food, and is seldom prepared to measure the quantity in grams or ounces.

Ordinary cooks know nothing of proteins, fats, and carbohydrates. They have no knowledge of the essential differences between different forms of protein and the carbohydrates. No one but a specially trained dietitian or a physician who has made a special study of dietetics and metabolism can properly direct the diet of a patient suffering from a grave form of diabetes.

Diabetes is a disorder of metabolism. Few laboratories are provided with the special means required for metabolism studies; almost none exists equipped for making clinical observations of metabolism, which are of utmost importance in this disease.

The diabetic patient must be under absolute control. The caloric value of each day's ration must be accurately known. The results upon sugar production and acidosis must likewise be noted with care.

Under the favorable conditions afforded by institutional management and the application of the up-to-date methods, even grave cases may be brought under control and often with surprising promptness. These methods are often found effective even in young persons and in cases so far advanced that diabetic coma is threatened or already beginning. Ordinary cases are quickly made sugar free and cases are very rare which may not be substantially benefited by the efficient application of systematic treatment under conditions of perfect control.

A special advantage of institutional treatment in these cases is the opportunity for training the patient in dietetic habits adapted to his individual requirements so that when he returns home at the end of a few weeks, he is able to establish and maintain a suitable regimen by which he may with the aid of careful watching by his family physician remain sugar free for an indefinite period.

We will be glad to send further information concerning the Battle Creek Method in Diabetes to any physician who will mail us the attached coupon.

**The Battle Creek Sanitarium, Battle Creek, Mich.**

Box 350

**The  
SANITARIUM,  
Battle Creek,  
Michigan**

Please send to the undersigned full information concerning the Battle Creek method of treating diabetes.

Dr.....

Street .....

City .....

State.....

## PUBLISHER'S DEPARTMENT

### DREER'S SEEDS. PHILADELPHIA

Readers of THE JOURNAL-LANCET will make no mistake if they send for one of Dreer's Catalogs and then make out an order for their seeds, shrubs, or plants. The high and uniform character of the goods sent out by this old and reliable firm can always be depended upon. Great care is taken with all mail orders, satisfaction being guaranteed in all cases. The catalog contains many valuable notes on seeds and shrubs for the garden or field.

### POTTENGER SANATORIUM

The above sanatorium, located at Monrovia, California, is under the direct charge of Dr. Pottenger, which commends it to every physician who has a patient that they desire to place in his care. If there are any of our readers not familiar with the work that this sanitarium has been doing for many years, they should correspond with the Doctor, or if you are planning a trip to the Exposition this summer, you should so arrange your route that you may spend a day at the sanatorium.

### ST. JAMES SANITARIUM

The above hospital and sanitarium is located at St. James, Minn., only a short ride from the Twin Cities, on either the St. Louis or Omaha railroads. The buildings of this company are among the largest and finest in the Northwest, and it is drawing many patients from outside the State. It has always been a pleasure to commend this sanitarium, as we have never known of a patient who was dissatisfied. Rates are very reasonable, compared with the excellent service rendered. Write them for full information.

### SIMS BREAKFAST FOODS

The use of cereals for children and convalescents, has become well-nigh universal. Sims breakfast foods are composed of carefully selected northern wheat and granulated extracts of malt, making a very delicious flavor, easily assimilated, healthful, and strength giving. This cereal is highly commended by physicians and we are very glad to know that the sales of the "Sims Cereals" are showing a very large increase over the corresponding months of 1914, which certainly shows, "'Tis good for body and for mind, a breakfast food of different kind."

### DOUBLE SERVICE TIRES GIVE GREATEST MILEAGE

The best tires in the country in points of service are those made by the Double Service Tire and Rubber Co., of Akron, Ohio. These tires are made of the same material that goes into the very finest high grade standard tires but the thread is twice as thick in both fabric and rubber. This thickness does not detract from the riding qualities in any way, yet it gives astonishing service and makes the tire practically puncture-proof in every way, for a tack or similar object cannot penetrate through this quality of material. These tires bear a 7,000 miles guarantee

but strange to say the prices are about 40 per cent lower than the standard tires. This saving is chiefly brought about by the fact that the tires are sold direct to the auto owner and thereby the cost of commissions is entirely eliminated, which makes the low prices possible.

### THE LUNG MOTOR

How can you feel safe without a Lungmotor in your office or within immediate reach? There is no telling how soon you will need one, and when you do need it, you want it at once, as a delay of two or three minutes often means death. It is a safe, sanitary, and effective means of reviving babies born asphyxiated. Physicians, hospitals, and sanitariums throughout the Northwest should correspond at once with the Life Saving Device Company, 567 Washington Blvd., Chicago, in regard to these lungmotors. The prices are extremely reasonable and it so desired, arrangements can be made for time payments. It is the only resuscitating device used by the United States Government. Noyes Bros. & Cutler, St. Paul, are their Northwestern Agents.

### FRENCH LICK SPRINGS

The European war has made it impossible for Americans to go abroad for hydro-therapeutic treatment. In consequence the spas of this country will be patronized hereafter more than they have ever been before, and Americans will be happily disappointed to learn that they can receive the same kind of treatment in this country as they have been used to getting in France, Germany and Austria.

One of the best known spas in America is the French Lick Springs, where the water possesses virtues equal to those of the great Continental spas. In addition to the excellence of the medical attendance, the sojourner at French Lick is certain of delightful hotel surroundings and most pleasant environment. French Lick, in addition to its other attractions, is the home of Pluto Water.

### SCHEIDEL-WESTERN COMPANY BRINGS OUT A NEW PLATE

A distinct and pleasing surprise to users of x-ray plates comes with the announcement that the Scheidel-Western X-Ray Co. have at last found an x-ray plate which they consider the high mark of quality long demanded by them.

Royal X-Ray Plates, for they are being put on the market by this name, are an entirely new departure. A factory manned by experts is at work turning out these plates exclusively. This factory will not make commercial plates.

The Plate itself is dependable, clear and very fast. Its beautiful details and delicate contrasts will be recognized by radiographers as the utmost in plate production.

An added novelty of the new plate is the fact that they are obtainable in square sizes—something entirely new—and offering a distinct saving and many new and serviceable advantages.

Scheidel-Western X-Ray Co. will be very glad to send prices to anyone upon request and every radiographer should take the first opportunity to investigate.



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## THE TREATMENT OF DIABETES\*

By J. S. GILFILLAN, M. D.

ST. PAUL

There are few diseases in which the direct results of proper treatment are more apparent than in diabetes.

Although recovery is rare, and severe cases are occasionally seen which resist all forms of treatment, in nearly all cases improvement may be brought about, and in most life may be prolonged for years. Then, in the cases presenting severe complications and in those in which death occurs, how often neglect in the past is responsible for the outcome.

The responsibility of the improper treatment of this disease rests partly on the medical profession. Many physicians seem to think that all cases are alike; and they prescribe an identical diet for all cases. If the glycosuria is small, many are satisfied, and do not make any effort to completely eliminate it. The patients themselves are, however, also very often to blame. In a disease so chronic, and presenting often no severe symptoms for years, the patient loses his fear of the condition, and often considers himself so well informed concerning its treatment that he does not place himself under constant medical supervision.

The so-called diabetic foods, whether obtained independently or prescribed by the physician, as is too often the case, have done a great deal of harm in this way. The printed diet lists so often given to patients are also bad.

Drugs, with the exception of alkalis in acidosis, play a very small part in the treatment of diabetes. The diet is the all-important thing.

In a paper of this kind many of the details of the treatment must be omitted, and only the principles involved considered.

I can claim no credit for originality in any method here put forth, nor is there much new. I have, however, personally used all of the methods discussed.

It is well to first enumerate the objects in the dietetic treatment of diabetes. In the first place a suitable diet will avoid loss of energy. The carbohydrates which are wasted are replaced by substances which can be utilized, and often we see marked gain in weight with a prompt cessation of the polyphagia, polydipsia, and polyuria. Secondly, a reduction of the hyperglycemia reduces the danger of complications; and it is to be remembered that after middle life more patients die of these complications than of the diabetes itself.

The third and most important object in our treatment is the reduction of the hyperexcitability of the sugar-metabolism, or, in other words, an increase in the amounts of carbohydrate food which can be utilized.

The following results of experimental work illustrate well the effects of diet in diabetes.

Allen, Rockefeller Institute (*Jour. of the A. M. A.*, Sept. 12, 1914).

By the removal of more or less of the pancreas in animals, Allen produced diabetes of varying severity. In chronic fatal cases so produced, a progressive degeneration of the cells of the island of Langerhans is demonstrated.

When the pancreas remnant is small a severe form of diabetes is produced, which does not

\*Read at the 46th annual meeting of the Minnesota State Medical Association, St. Paul, October 1 and 2, 1914.

depend on diet and is rapidly fatal. When the remnant is larger a condition may be produced in which the animals remain well on a meat diet, while a carbohydrate diet gives rise to diabetes. Diabetes so produced by diet at first disappears on returning to a meat diet; but when it has existed for a longer time it cannot be so overcome, and assumes a severe character, fatal in spite of diet. The changes in the islands of Langerhans are the same, whether the disease is due directly to operation or is induced by diet, but are apparently absent when the disease is prevented by exclusion of carbohydrates.

When the pancreas remnant is of suitable size the animal may develop diabetes on a meat diet, and the disease ends fatally if allowed to persist. Fasting, however, will cause the glycosuria to disappear, providing the condition has not persisted too long. As suitable feeding is initiated and gradually increased, glycosuria may be avoided, and the animal kept alive and well indefinitely.

In human diabetes the conditions are quite similar. There are severe cases, rapidly progressing to death in spite of treatment. There are slight cases in which the glycosuria disappears under a suitable diet, the tolerance increases greatly, and practical cure is possible. Between the extremes we find all degrees of severity. As in the experimental observations, the more the sugar-metabolism is overtaxed and the longer the glycosuria continues, the more difficult the treatment, and the less the hope of improvement.

When a case presents itself for treatment it is first necessary to determine the severity of the disease, or, in other words, the tolerance for carbohydrates, and often also for proteids. This is done by restricting the diet until the sugar disappears from the urine, if this is possible. The carbohydrates should not be suddenly withdrawn, as this may bring on coma in some cases. I usually prescribe a carbohydrate-free diet plus three or four ounces of white bread. The total value of the diet should be sufficient, which means, as a rule, an increase in the fats. If the sugar does not disappear, the bread is withdrawn, an ounce every three or four days, until the patient is on a so-called carbohydrate-free diet. This is continued for a week or two. In cases of slight or moderate severity, sugar has disappeared from the urine. In severe cases the proteids must also be restricted.

In the cases which become sugar-free and remain so on the above diet, we find that often we may gradually increase the carbohydrates. The tolerance increases, sometimes to an extent enabling the patient to take as much as he desires. In most cases some permanent restriction is necessary.

In the cases which do not become sugar-free on a diet free from carbohydrates continued for several weeks, the proteid must be reduced, and fats and alcohol used to a greater extent. In these cases the so-called oatmeal cure is applicable.

Von Noorden first described what is known as the carbohydrate or oatmeal cure. He discovered that, after the glycosuria is overcome or reduced as far as possible by several days of diet, consisting of green vegetables and fats, with perhaps a few eggs, then a single variety of carbohydrate given alone, without proteid food, but with fat, may be assimilated; that the glycosuria is not increased, but may be diminished; and that acidosis is greatly lessened. This is true for two or three days only, when a change must be made to a carbohydrate-free diet. This may be repeated several times, until the danger of coma has passed and tolerance increased. Oatmeal is the best form of carbohydrate food to use in the majority of cases. It should be noted that this food is no better than any other except when given as above described.

This treatment is of no value in the milder forms of diabetes in which, besides the ordinary restricted diet containing ample proteids, a moderate quantity of carbohydrates is tolerated. It is of great value in the more severe cases, and especially in those with evidences of marked acidosis.

Regarding gluten bread and the various diabetic foods: I have previously stated that they do much harm at times. This is due to the fact that they are used by the laity, and too often by physicians without any knowledge of the quantity of carbohydrates they contain. If desired, such foods may be used in place of an amount of bread containing an equivalent amount of starch. Street, of the Connecticut Agricultural Experimental Station, has recently published the results of analyses of a great number of these foods. Many contain over 55 per cent of starch,—that is, as much as white bread,—while some contain 70 per cent or more.

If these foods are used at all it must be with

a knowledge of their constituents; and, as a rule, an equivalent amount of white bread will be more desirable. Personally, I do not use them.

The following histories may illustrate some of the various forms of diabetes and their response to diet. First a mild case, such as we so frequently see in obese patients:

The patient is fifty years old. Up to a short time ago he weighed 325 lbs. For the past six months he has tired easily, thirst has been much increased, and he passes four quarts of urine containing 4.5 per cent of sugar. There are no signs of acidosis. For the past month he has been on a diet, but has been allowed one quart of milk, and whole-wheat bread. He was put on a carbohydrate-free diet, plus four ounces of white bread. In three days the urine was reduced to two and one-half quarts, and the sugar was less than 1 per cent. The quantity of bread was now reduced to three ounces, the polydipsia disappeared, urine fell to three pints, and there was no sugar. He has been on this diet since, and feels perfectly well and excretes no sugar.

This was a very mild case, and the fault with the previous treatment was that there was no estimation of the quantity of carbohydrates given. The case would probably have progressed steadily from bad to worse. A simple modification of diet overcomes the glycosuria; and in all probability the patient will live for years, and remain free from complications. The tolerance must be determined from time to time, and the diet adjusted to suit the condition.

The following is an example of a more severe case in which the oatmeal cure was used:

The patient is a boy, aged 11. For three weeks urination has been frequent, and thirst increased. The urine contains 4 per cent of sugar. Carbohydrates are gradually withdrawn entirely, but sugar persists after five weeks. The patient, however, gains four pounds in weight. For two days, proteids are excluded, except eggs; sugar disappears, but acetone and diacetic acid are present. Alkalies are ordered and oatmeal given, six ounces daily. A trace of sugar appears after three days. This disappears on the vegetable diet; and this alternative of oatmeal and vegetable diet is repeated three times. Sugar remains absent, and diacetic acid disappears. Now we return to a carbohydrate-free diet, and find that no sugar appears. Then bread is added, half an ounce at a time to one and one-half ounces with eight ounces of cream. Upon this diet he remains well, and weighs more than ever before. Here we see a considerable increase in the tolerance. While the ultimate outlook in such cases is bad, it is not absolutely hopeless, and I think that we are well repaid for the effort.

A great danger to which these patients are subject is that of diabetic coma, brought on by the presence of organic acids in the blood. In the treatment of diabetes, the urine should be

examined for these bodies as carefully as for sugar.

When carbohydrates are quickly withdrawn from the diet of a healthy person, acetone and diacetic acid appear in the urine, but disappear after a time. This is true also in the milder cases of diabetes, so that we must not be alarmed at the presence of the ferric chloride reaction under these circumstances. When, however, this test is present on a free diet the condition is serious.

The administration of alkalies neutralizes these acids and hastens their elimination; the administration of carbohydrates also limits their production.

There is no necessity for giving alkalies unless diabetic acid is present; and if the urine can be rendered alkaline nothing can be accomplished by more alkalies. I make a practice of ordering sodium bicarbonate when the ferric chloride reaction is positive, beginning with about three drams a day and increasing to six drams if the reaction of the urine remains acid. In severe cases in which coma threatens, it is necessary to give larger amounts, one or two ounces a day by mouth and perhaps also by rectum, a three-ounce solution given by the drop-method. Of course in these cases no attention is paid to the glycosuria and carbohydrates are given freely.

When the patient cannot swallow or when vomiting is persistent, the alkali must be given intravenously. I use a three per cent sodium carbonate solution, injected very slowly, up to one quart. I have seen considerable improvement follow this treatment, but it has been only temporary. Cases of recovery have, however, been reported, so that we must always do what is possible.

#### DISCUSSION

DR. J. H. HYNES (Minneapolis): What struck me in Dr. Gilfillan's paper, if I may risk the possibility of being called a "drug fiend," was that we have a few drugs which have a salutary effect upon diabetes. It always seemed to me the administration of salicylic acid or some of its derivatives, even in the mild cases of diabetes, rather increased the carbohydrate-tolerance. That has been my personal opinion and experience.

Also, with reference to a few other drugs: It seems to me that diabetes, *per se*, has a great deal to do with the nervous system, and the use of bromides helps in not only increasing the carbohydrate-tolerance, but in preventing the development of coma and acidosis, which we dread so much.

With reference to the use of opium: It has always seemed to me that it was a reprehensible practice to give it, unless it was absolutely essential, and the only



form that I have been able to find would aid in diabetes was codein. I can give codein in pretty large doses with good effect in diabetes. You can begin with possibly two grains a day, and increase it up to eight grains until the sugar disappears, and then gradually reduce the dose.

Dr. Gilfillan covered the oatmeal treatment so thoroughly I shall not speak further on it. The green vegetable diet I am fond of. The diabetic tolerates spinach better than any other vegetable.

DR. E. L. TUOHY (Duluth): Everything Dr. Gilfillan did not say Dr. Hynes did,—consequently, there is very little left for me to discuss.

Judging routinely people who come to the physician and in whom sugar is found in the urine, we note that they easily fall into three groups: First, the individual in whom sugar is found in the urine by accident, either at an insurance examination or during the usual routine office investigation. Oftentimes a very little attention to the individual's diet frees the urine of sugar. This class of cases we scarcely feel like calling true diabetes, but rather alimentary glycosuria, even though that term in our recent literature is being more and more restricted. The second group comprises those young individuals under fifteen or eighteen who are brought to the doctor because of very evident undernourishment, with dry parched skin, a polyuria or enuresis, and general wasting. In those we find a large amount of sugar in the urine, and the fact remains that very few ever recover. Most of them die within a year or eighteen months. In the third group we find those individuals well past middle life who show a large amount of sugar in the urine. These cases are often found, for example, because of an associated carbuncle, a gangrenous toe, or some other lesion readily suggesting diabetes. Many of these cases lose a good deal of the sugar under strict treatment, but they feel so well, as a rule, they do not stay under observation very long. Many physicians succeed in keeping these patients entirely happy by telling them that they have only a trace of sugar in the urine, whereas they may be carrying anywhere from five to ten per cent.

From this it would seem quite clear that sugar in the urine or so-called glycosuria is rather a symptom than a disease in itself.

The work of Eppinger in von Noorden's clinic, as well as the many others who have studied the question from the standpoint of the glands of internal secretion, is intensely interesting, though not therapeutically complete. While it is well known that the pancreas and the adrenal glands have an antagonistic action, in the sense of restraining or inducing the mobilization of glycogen in the liver, and while the collaborating effect of the thyroid, the sympathetic nervous system, etc., is well known, still there is much regarding the exact tissue metabolism which is very obscure. It is fairly well accepted that where we have definite destruction of the Islands of Langerhans, in the pancreas the hormone restraining glycogen in the liver is wanting, and there is loss of tolerance for carbohydrates. On the other hand, we know that in adrenal insufficiency, as, for example, Addison's disease, exactly opposite conditions arise, and there is an unusual tolerance of carbohydrates, the blood carrying a percentage of sugar above the normal (.2 per cent).

Tumor of the hypophysis is often associated with

glycosuria. Some have noticed a tendency to low carbohydrate-tolerance in hyperthyroidism. I recall a man who came to me some four years ago in whom a diagnosis of diabetes had been made. He had fallen from a considerable height, striking upon his head. Thereafter he was unconscious for a few hours, and gradually was able to get up and be about. Later, sugar was found in the urine. He was treated elsewhere, for a period, as a diabetic. Briefly speaking, this proved to be an instance of the effect of concussion of the brain acting through the sympathetic nervous system upon the adrenals. As soon as the man had recovered his normal nervous equilibrium, the sugar promptly disappeared. Such cases as these certainly should not be termed diabetes any more than should cases of brain tumor showing glycosuria be so termed.

Therefore, while most true cases of diabetes are fairly manifest from the other symptoms, it would seem that our first duty in determining the presence of sugar in the urine, is to determine, as far as we can, whether this may be symptomatic of something else.

There are many questions relating to the carbohydrate-digestion which need further elucidation. At the last meeting of the Gastro-enterological Association, at Atlantic City, a method of treating diabetes through stomach lavage, was given considerable discussion. It developed that this plan had been used by the author of the paper, over a period of a number of years, with what he termed excellent results. Closer analysis showed that he adapted the stomach-lavage to the conditions which he found in the stomach—for example, in very low degree of acidity he would accommodate his washings accordingly, in such manner as no doubt to stimulate a more normal gastric secretion. The manner in which the normal gastric juice stimulates the secretion of the pyloric region, and how this, in turn, stimulates the pancreas function, will be readily recalled. A few cases in which I have had an opportunity to study the stomach juices, would indicate that there will usually be found some change from the normal. I have observed four cases in which a definite achylia gastrica existed—one of these in a young girl of twelve in whom one would not naturally expect such a condition. Careful compilations of the findings in a considerable series of cases should be made, with, as far as possible, careful analysis of all of the secretions of the gastro-intestinal tract, even beginning with the saliva, and including analysis of the duodenal contents, where possible.

Vital as it is to determine every patient's tolerance for carbohydrates, still we must admit that this is only an empirical way of treating a disease, the true nature of which we are still far from knowing.

Dr. Gilfillan deserves especial credit for insisting upon accurate methods and close observation of feeding these patients, since this offers practically the only relief known at the present time.

DR. L. A. NIPPERT (Minneapolis): Most of the points in regard to the treatment of diabetes have been mentioned by Dr. Gilfillan.

Dr. Tuohy's remarks about distinguishing glycosuria from diabetes are very timely. It is not uncommon to find sugar in persons who do not have diabetes, but in whom sugar, especially grape sugar, if taken in excess, is eliminated by the urine. For instance, one of my patients was greatly alarmed when a year ago, while visiting in another city, it was found

that she had sugar in the urine. On her return frequent examinations showed absolutely nothing abnormal until this month, when after eating grapes a trace of sugar again appeared. However, even occasional finding of sugar in the urine should always put one on his guard.

One of the most difficult problems in the treatment of diabetics is the co-operation of the patient whose great appetite and excessive thirst are apt to lead him to excess, in both eating and drinking, and he often rebels against the attempts to reduce his food.

As drugs have no direct effect on the course and manifestations of this disease, it is often much better to omit them entirely so that the patient understands that the regulation of his diet is the only treatment from which he can expect relief.

A MEMBER: I am afraid the essayist did not emphasize quite sufficiently one point, and that is the absolute fearlessness with which we must attempt to make our case sugar-free. When the average physician puts a patient on a strict diet the acetone increases tremendously, and the patient complains bitterly. We must absolutely maintain the diet until our cases are sugar-free, and no genuine diabetic exists who cannot be made sugar-free.

There is one little trick which will be of value, and which tends to assist at this stage, and I hope you will try it. It is to give these cases from eight to sixteen ounces of cognac. The acetone will not increase, and the nutritional balance will be maintained until the patient is made sugar-free. It is surprising how large an amount of cognac these cases will assimilate, and come out sugar-free. That is one point, if remembered by those who have had difficulty, which will materially assist them.

DR. GILFILLAN (closing): Dr. Hynes spoke of the advantage of drugs in diabetes. I did not mean to intimate that drugs are of no service in diabetes, but in most cases we do not need them. In certain cases we have to give the drug indicated in that particular case. In the nervous cases, a nervous sedative does good. It reduces the glycosuria which varies so much in cases of diabetes with the nervous condition of the patient, and we sometimes have to give sedatives or opium. Salicylic acid has some effect on glycosuria, but I do not think it cures. It will reduce the glycosuria temporarily perhaps, but I do not believe that it helps any ultimately. I do not use it.

Dr. Tuohy spoke of alimentary glycosuria. You cannot call glycosuria alimentary unless there is an evident error in the diet of the patient. If you can demonstrate the patient is over-eating carbohydrates, especially sugars, and if by a return to normal diet the

sugar disappears from the urine, you have alimentary glycosuria probably, although the division between alimentary glycosuria and diabetes is not a distinct one. Some draw the line by saying that if a patient excretes sugar on a diet with ample starches, but without sugar, he has diabetes. If he does not excrete sugar on such a diet, it is not diabetes. But there are cases of diabetes in which we cannot draw any distinct line.

Dr. Tuohy spoke of diabetes being rather a symptom than a disease. I do not know. We have always tended to think that, but I have more and more the idea now that all cases of true diabetes are due to the pancreas, and nothing else.

The adrenal glands have some influence on the sugar-metabolism of the body, but by the administration of adrenalin you cannot maintain the glycosuria. You can get glycosuria on a certain dose of adrenalin, but apparently the pancreas increases its function and overcomes that. If you increase the dose of adrenalin glycosuria may again be produced, but finally this can no longer be done. It is the same thing with the thyroid. In cases of hyperthyroidism we have impaired sugar-metabolism, but no true diabetes. The same thing applies to the nervous system. You may get glycosuria here, but I do not think there is ever a chronic progressive diabetes from a nervous lesion.

Dr. Nippert spoke of the difficulty in controlling these cases. That is what makes it so hard to benefit them. If a patient is put on a greater restriction than a carbohydrate-free diet, he should be put in a hospital. You cannot do much with these patients on the outside, and that treatment is dangerous.

One gentleman in discussing the paper said you can always get a patient sugar-free. I do not know about that. In the severe cases we often have to give them up. If the acidosis increases rapidly and progressively you had better quit; you may make them sugar-free unless they die of coma first. In a case where coma is evidently threatening, the elimination of sugar from the urine is a minor consideration and a dangerous procedure.

Alcohol has been spoken of as a food in this condition; and it is a valuable food I think in certain cases. I give alcohol carefully. I do not give it to young people, children, or women. In the lighter cases it is unnecessary, but where we have difficulty in maintaining the proper amount of nutrition there alcohol is valuable. It contains a considerable amount of nutrition, more than sugar,—about seven calories to the gram up to a certain amount, not indefinitely,—and may be used in this way in severe cases when it is necessary.

## COMMON ERRORS IN GALL-TRACT SURGERY

By C. E. RUTH, M. D.

DES MOINES, IOWA

## IN TWO PARTS—PART TWO

It is to be hoped that a better understanding of the value and use of the omentum may soon become more general among those who practice the art of surgery, and that the stomach and intestines, particularly, may be less impaired in their subsequent functions after all abdominal work, especially in the upper abdomen. All friction of a delicate endothelial surface in the abdomen by gauze of any kind, must be avoided, or reduced to the minimum. Especially must no dry gauze be allowed *ever to come in contact with any endothelial surface* in the abdomen, unless it be for the deliberate purpose of destroying or injuring the same and causing adhesions, as may be justifiable in attempts to secure *omental* vascular attachments to the abdominal walls in cases of ascites. The slightest contact of dry gauze with any of the endothelial lining of the abdominal cavity will destroy much of its surface.

Carelessness in failure to protect the intestines and omentum from skin contact now that the use of iodine in skin preparation has become almost universal, is another cause of adhesion complication in otherwise clean and satisfactory operative procedures. It is not an uncommon sight in the operating room to see large masses of abdominal viscera rolled out of the abdomen upon a skin surface but recently painted with Churchill's tincture of iodine.

## REPORT OF CASES IN "GALL-TRACT SURGERY"

CASE 1.—Mr. H. K., Mason, Iowa, aged 71, farmer.

December 23, 1911. Cholecystotomy. Calculus found with much pus and mucus, with extensive adhesions and points on the gall-bladder, ready to slough. He was profoundly septic, and had lost much flesh, having been seriously sick for four months. The liver was nodular with points of infarct. Death in thirty-six hours. Nature of infection not determined.

CASE 2.—Mrs. I. J. G., Peru, Iowa, aged 39, house-wife. Referred by Dr. J. W. Carver, Peru, Iowa.

July 29, 1912. Cholecystotomy. Removed one stone from gall-bladder. Gastrojejunostomy. Recovered, and remains well. Colon bacillus infection. Had had four previous abdominal sections within fifteen months for cholelithiasis, ovariectomy, appendicitis, and ventral hernia.

CASE 3.—Mrs. Wm. B., Dallas Center, Iowa, aged 60, house-wife. Referred by Dr. J. H. Chiles, Dallas Center, Iowa.

October 15, 1912. Cholecystotomy. Entered the hospital in great agony, which had lasted ten days and required frequent hypodermics of morphine. Operation

immediately on entering hospital, and 205 calculi removed; much pus and mucus present. Gangrenous gall-bladder; mucosa was removed. Recovery without incident. Remains well. Nature of infection not determined.

CASE 4.—Mrs. Hattie L., Alden, Iowa, aged 36, house-wife. Referred by Dr. J. Johnson, Alden, Iowa.

November 8, 1912. Cholecystotomy. No stones found. (Some operating had been done six weeks before without relief, operator not named.) Recovery uneventful, but relief lasted only during drainage.

February 3, 1913. Anastomosis was made between the gall-bladder and the hepatic flexure of the colon with a Murphy button. Relief was immediate, and recovery prompt. No bile in urine. Massive growth of colon bacillus and staphylococcus pyogenes albus infection.

July 2, 1913. Pain having returned, the drainage into the colon was believed to have closed, and another operation was advised. The gall-bladder was removed entirely. Recovery was prompt. Ten months have passed now, and she remains well.

CASE 5.—Mrs. Adam R., Corydon, Iowa, aged 51, house-wife. Referred by Dr. B. S. Walker, Corydon, Iowa.

November 9, 1912. Cholecystotomy. Very advanced case of pulmonary tuberculosis. Removed large number of calculi. Recovery was without incident, but she died soon after returning home from the phthisis. Colon bacillus infection.

CASE 6.—Mrs. Doyle McG., Rippe, Iowa, aged 34, house-wife. Referred by Dr. A. I. Reed, Grand Junction, Iowa.

February 10, 1913. Cholecystotomy. Two large stones of mulberry type removed; drainage; appendectomy. Recovery without incident. Colon bacillus infection.

CASE 7.—Mrs. W. W. B., Corydon, Iowa, aged 42, house-wife. Referred by Dr. J. N. McCoy, Corydon, Iowa.

February 25, 1913. Cholecystotomy. Removed many stones. Appendectomy. Much pus and mucus found in gall-bladder. Culture (two days' growth) colon bacillus and staphylococcus aureus infection.

March 5, 1913. Curettage, double trachylorrhaphy, perineorrhaphy, and hemorrhoidectomy. Recovery uneventful, except development of cystitis, which caused much annoyance.

Ten months later, well.

CASE 8.—Mrs. J. M. H., Lineville, Iowa, aged 34, house-wife. Referred by Dr. J. S. Coontz, Garden Grove, Iowa.

March 8, 1914. Cholecystotomy. No stones found. Appendectomy and right oöphorectomy. Recovery without incident. Remains well. No bile in urine. Colon bacillus infection.

CASE 9.—Mr. E. F. A., Peru, Iowa, aged 35, merchant. Referred by Dr. J. W. Carver, Peru, Iowa.

March 14, 1913. Cholecystotomy. Ten days later the entire right lung became solidified, patient cyanotic, pure pneumococcus infection of the lung, while the gall-bladder infection was a pure streptococcus, without



stones. After development of the pneumonia patient's vitality was taxed to the utmost for several days, and in this case infection took place in the main wound, resulting in a slight hernia, the only one we have had in which primary union did not occur, and the only one in which hernia has occurred. In this case we had a vicious infection of the gall-bladder, but union seemed to progress perfectly until the pneumonia set in with severe coughing, and profound cyanosis required loosening of all constriction support to abdomen and lower chest.

March 12, 1914, well, slight ventral hernia, left lung doing most of the work.

CASE 10.—Mrs. J. H. G., Barnes City, Iowa, aged 39, house-wife. Referred by Dr. Phil M. Day, Barnes City, Iowa.

April 11, 1913. Cholecystotomy. Removed two stones, one of which was in the cystic duct. Much pus and mucus found. Recovery without incident. Colon bacillus infection.

Ten months later, well.

CASE 11.—Mrs. Luna E. S., Des Moines, Iowa, aged 50, house-wife.

May 24, 1913. Leucocytosis of 12,200. Cholecystotomy; no stones, drainage, thick tarry bile; pain and tenderness over fundus of gall-bladder, with fever for three days. No growth on blood serum. Enormous ventral hernia, and extensive intestinal adhesions, causing marked stenosis resulting from previous operations. Adhesions were all separated, and the raw surfaces covered with omental grafts; a flap of aponeurosis was made from the right side to cover the gap between the aponeuroses, which could not otherwise be approximated. Her vitality was taxed severely for a couple of days, but otherwise her recovery was without special incident. She is perfectly well on May 9, 1914.

CASE 12.—Mrs. Mary A. E., Tipton, Iowa, aged 48, house-wife. Referred by Dr. Thos. H. Flesher, Edmond, Okla.

June 27, 1913. Cholecystotomy. Removed one stone. Umbilical herniotomy. Eight days later did perineorrhaphy and hemorrhoidectomy. Recovery without incident. Colon bacillus infection. Twenty-seven days after first operation discharged well.

September 4, 1913, reported well.

CASE 13.—Mrs. H. E. G., Ponce, P. R., aged 36, house-wife.

September 29, 1913. Cholecystotomy. Twelve calculi removed. Drainage-tube removed the sixteenth day. Recovery without incident. Colon bacillus infection. May 1, 1914, well, and reports better health than for many years.

CASE 14.—Mrs. Anthony W., Milo, Iowa, aged 64, house-wife. Referred by Dr. Mack Hickman, Milo, Iowa.

October 18, 1913. Cholecystotomy. Gall-bladder found packed full of stones. Drainage. Umbilical herniotomy. Colon bacillus infection. Discharged in three weeks. Eight months later reported well.

CASE 15.—Mrs. J. E. R., Ottumwa, Iowa, aged 53, house-wife.

November 1, 1913. Cholecystotomy. No stones found. Drainage. Shortened gastrohepatic fold of omentum, and anchored omentum to support ptosed transverse colon. Recovery slow from great previous feebleness.

Colon bacillus infection. Five months later free from pain and better than for years.

CASE 16.—Mrs. C. L. M., Corydon, Iowa, aged 45, house-wife. Referred by Dr. B. S. Walker, Corydon, Iowa.

November 4, 1913. Cholecystotomy. No stones found. Appendectomy. Drainage. Unable to obtain growth, but pain and fever were at once relieved, and had not returned on last report, five months later.

CASE 17.—Mrs. A. T. G., Corydon, Iowa, aged 45, house-wife. Referred by Dr. B. S. Walker, Corydon, Iowa.

November 4, 1913. Cholecystotomy. Removed many large calculi. Drainage. Appendectomy. Recovery without incident. Staphylococcus albus infection. Five months later, well.

CASE 18.—Mr. J. D. M., Corydon, Iowa, aged 58, farmer. Referred by Dr. B. S. Walker, Corydon, Iowa.

December 8, 1913. Cholecystotomy. No stones found; thick tarry bile. Colon bacillus infection, streptococci X, staphylococci XXX. Four days later displaced the cocci. Much inflammatory exudate between the gall-bladder, duodenum, and stomach. Recovery rather stormy, and complicated by phlebitis of the right leg. Five months later well.

CASE 19.—Mrs. M. C., Jefferson, Iowa, aged 54, house-wife.

December 12, 1913. Cholecystotomy. Removed an enormous number of stones from a greatly distended, thickened, necrotic, densely and extensively adherent gall-bladder. Removed an ovarian cyst as large as coconut. Ventral herniotomy. Her vitality was taxed heavily for a couple of days, but recovery was in other respects devoid of incident. Colon bacillus infection. Six months later, well.

CASE 20.—Miss Selena M., Hillsboro, Iowa, aged 55.

January 6, 1914. Cholecystotomy. No stones found. Drainage, thick tarry bile, but no growth was obtained on blood serum. Hemorrhoidectomy. February 24, 1914, von Pirquet positive. March 8, 1914, pleuro-pneumonia. Lung did not clear entirely. X-ray showed fluid in right pleura. April 13, 1914, aspiration without results. April 27th, resected two inches of the right eighth rib, freed adhesions of right lung, and drained; amount of fluid very small. Recovery from both operations was slow, but otherwise satisfactory. May 20th, left hospital, free from pain and fever, and without cough.

CASE 21.—Mrs. Chas. R., Titonka, Iowa, aged 53, house-wife.

March 23, 1914. Cholecystotomy. Removed many stones. Drainage. Appendectomy. Recovery without incident. Colon bacillus infection, which was slow in clearing up, requiring unusual drainage time. Two months later reported she was well.

CASE 22.—Mr. Ray E., Humeston, Iowa, aged 27, farmer. Referred by Dr. H. T. Smith, Humeston, Iowa.

May 25, 1914. Cholecystotomy. No stones found. Drainage. Appendectomy. Temperature, 103° on third day, required placing of drain in upper part of the wound for a few days. Recovery otherwise not disturbed. Albumin, heavy deposit, disappeared from urine in three days. Bile in urine. Bile-culture shows pure staphylococcus albus in twenty-four hours, while smear showed cocci at once.

CASE 23.—Mrs. T. L. L., Barnes City, Iowa, aged 33, house-wife. Referred by Dr. Phil M. Day, Barnes City, Iowa.

June 1, 1914. Cholecystotomy. About ten calculi were removed, three of which were in the cystic duct, much pus and mucus removed. Thirty-one days before she was taken with typhoid fever. Had been free from fever for eight days, when acute cholangitis developed with renewal of fever on May 30, 1914. Was seen by me June 1st and removed by automobile and train eighty-five miles, and was operated on as soon as possible after entering the hospital. Patient ran a typical typhoid course after operation with subsultus, picking at bed clothes, extreme restlessness without sleep. Temperature, 101° to 103°. Pulse, 104 to 120. Culture from the pus taken from the gall-bladder was a pure typhoid bacillus. Two weeks after operation temperature was normal; pulse, 90 to 100; rational; taking nourishment well. Typhoid bacilli still present.

#### REMARKS

CASE 4.—Mrs. H. L., had one previous cholecystotomy operation for the same condition, and required two subsequent operations before recovery was complete and permanent. The last consisted of cholecystectomy.

CASE 11.—Mrs. L. E. S., had three previous abdominal sections, which were accountable for the ventral hernia. Those three previous operations had been done by the same operator. Conditions unknown to the writer.

CASE 19.—Mrs. M. C., the ventral herniotomy complication in this case resulted from an abdominal section done by the writer two years previously, when an ovariectomy was done for removal of a cyst containing three gallons of pus, and her temperature was 103° under profound sepsis.

CASE 21.—Mrs. C. R., showing the method of drainage, though the tube should go direct to the top of the bottle without forming any loop, and thus avoid the danger of kinking of the tube at the bottle neck.

CASE 21.—Mrs. C. R., is a cholecystotomy, removing many calculi, and appendectomy. Very obese; umbilicus excised.

CASE 7.—Mrs. W. W. B., a cholecystotomy for cholelithiasis, and appendectomy. Infection colon bacillus and staphylococcus aureus. Eight days after the cholecystotomy operation, did curettage, double trachylorrhaphy, perineorrhaphy, and hemorrhoidectomy.

CASE 8.—Mrs. J. M. H., a cholecystotomy, appendectomy, and right oöphorectomy. Colon bacillus infection.

Mrs. J. H. McD., a case of general suppurative peritonitis complicated with acute dilatation of the stomach, with enormous amount of fecal matter in the stomach, and apparently moribund four days before the abdominal section.

These twenty-three cases, operated upon in the few months covered by the report, present an average age of forty-six and one-sixth years, the oldest being seventy-one and the youngest twenty-seven years.

Seven of these cases are noted as in a critical condition. By that I mean they were emergency

cases as truly as the average acute case of appendicitis.

In one case, however, the patient was in the last stages of pulmonary tuberculosis, and was operated on because of the terrible suffering from the cholelithiasis, from which she begged operative relief. She recovered without incident from the operation, but died from tuberculosis soon after her return home. The operation gave her immediate and complete relief from pain.

There was only one fatality, and that in a man seventy-one years of age, who had had biliary obstruction for four months, was in extremis with profound sepsis, had numerous infarcts in the liver, and the gall-bladder showed necrotic points.

Ether was the anesthetic used in all but the tuberculous case, in which chloroform was given.

The time of operation ranged from thirty minutes to one and three-quarter hours, according to the severity, difficulty, and number of complications handled.

Gall-stones were found and removed in fourteen cases; there were no stones in nine cases. In case No. 9, however, while we found no calculi, we did find a pure streptococcal infection, and the patient had a leucocytosis of 62,200 with 90 per cent of polymorphonuclears. Fifteen cases showed colon bacillus as the infecting organism, three of which had joined company with the staphylococcus; and in one case both streptococci and staphylococci were present.

Other operations and diseases are noted as complications; and were present in twenty of the twenty-three cases.

Of these complications nine are appendectomies, two ventral herniotomies, two umbilical herniotomies, two perineorrhaphies, two ovariectomies for ovarian cysts, one trachylorrhaphy, three hemorrhoidectomies, one phlebitis. Three had profound sepsis; and in one of these gravely septic cases, the gall-bladder mucosa, being necrotic, was removed. In only one case was a cholecystectomy done, and in one the mucosa of the gall-bladder was removed. All cases were drained until the discharge was nearly or quite sterile. In all but three cases the gall-bladder was inverted around the drain, and all closed within one week after the drainage tubes were removed, and some did not drain longer than two days after removal of the tube.

One case was complicated by visceroptosis; and in that case the ptosed condition received operative attention.

One case developed consolidation of the entire

right lung on the tenth day (pneumococcic infection), and in this case the infecting organism in the gall-bladder was a pure primary streptococcus.

In this series of twenty-three cases cholecystotomy was complicated by no less than twenty-nine operative or other conditions of greater or less importance.

If this small number of cases can be said to carry any important lessons for us, it would seem to be that cholecystotomy without grave complications should be practically without mortality;

infection is not present, and it is surprising in how large a proportion of these cases some form or other of gall-tract disease is present and can be dealt with satisfactorily for the most part through a median incision, supplemented by a stab-drain in the side. I am referring now mostly to the female cases. In the male the same principles apply only to a limited extent. The main reason for using a median-line incision in the male is to preserve the integrity of the abdominal wall, while in the female it is made for the added reason of giving access to the pelvic organs. I believe very strongly in and have used the auxiliary stab-drain in as many abdominal operations as possible, both in the appendix and the gall-bladder cases. I think it is an admirable way of preventing post-operative hernia, and of limiting the

Case	Age	Condition critical	Stones	No Stones	Primary	Secondary	Pus	Adhesions—extensive	Complications	Colon Bacillus	Staphylococcus	Streptococcus	Mixed	Not Determined	Rec.	D
1	71	1	1		1		1	1	Infarcts in liver; profoundly septic Gastrojejunostomy.	1				1		1
2	39		1			1		1	Profoundly septic.					1		1
3	60	1	1		1		1	1						1		1
4	36			1		1		1		1	1		1			1
5	51	1	1		1				Phthisis very adv.	1						1
6	34		1		1				Appendectomy.	1						1
7	42		1		1		1		Appendectomy trachy; perin; and hemorrhoid.	1	1		1			1
8	34			1	1				Appendectomy; right oophorectomy.	1						1
9	35	1		1	1				Appendectomy; ten days later pneumonia.			pure 1				1
10	39		1		1		1			1						1
11	50			1	1	Prev. oper.		1	Ventral hernia; extensive adhesions.					1		1
12	48		1		1				Umbilical hernia; perineum; hemorrhoid.	1						1
13	36		1		1					1						1
14	64		1		1				Umbilical hernia.	1						1
15	53			1	1				Visceroposis.	1						1
16	45			1	1				Appendectomy.					1		1
17	45		1		1				Appendectomy.		1					1
18	58	1		1	1		1	1	Appendectomy; later phlebitis, septic.	1	1	1	1			1
19	54	1	1		1	Prev. oper.		1	Ventral hernia; ovariectomy.	1						1
20	55			1	1	Prev. oper.			Hemorrhoidectomy.					1		1
21	53		1		1				Appendectomy.	1 slow						1
22	27			1	1				Appendectomy.		pure 1					1
23	33	1	1		1		1		Typhoid fever.					pure typhoid		

that cholecystotomy is no bar to other operative procedures, if the patient is in good condition and the operations be properly done with sufficient dispatch; and that, whenever possible, other important pathological conditions should be eliminated as far as it is consistent with safety to the patient.

#### DISCUSSION

DR. G. G. COTTAM (Sioux Falls): This paper presents in concise and well-balanced form the accepted views of gall-bladder surgeons of today, together with such original additions as the author has figured out for himself. I always like to be able to find in a paper some point around which controversy can be woven, if possible; but I am sorry to say in the present instance the subject is covered in such a way and so thoroughly in accord with what I believe to be the trend of surgical feeling today, that it leaves very little for me in which to pick any holes.

I have been making a systematic exploration of the gall-tract in all abdominal operations where acute in-

period of convalescence. The patients certainly do better: they recover in a shorter time, other things being equal, and the end-results are better with a stab-incision for drainage purposes, as has been so tersely and satisfactorily described by the essayist. There is, however, a type of cases in which satisfactory management of the gall-bladder through a median incision is impossible. In the first place, we have the type of cases in which there is some binding down of the liver itself, lessening greatly its range of mobility; and we also have a class of cases in which there has been a chronic pericholecystitis of long standing, in which the parts are so densely bound down that it is difficult to bring them into the median field, even if strong retraction of the right side of the incision is used. In these cases there is really no recourse left to us, except to make the auxiliary incision in the right side large enough to deal satisfactorily with the gall-bladder. But these only constitute a small proportion of cases. The essayist's principles apply to the bulk of them.

The duration of drainage and character of it must be determined by each individual case. His drainage period is longer than that I generally use, but a bacteriological



examination of the bile should be the criterion. The type of tube I use mostly is a heavy walled tube or something like Mayo Robson advocated years ago, and for which a large catheter may be used if the ordinary tubing is not at hand. I mean a catheter with a large thick wall is about the type of tube we want, and which will take care of the thick bile in these infected cases without collapsing from external pressure.

I do not know what the experience of the other members has been in that particular, but I find in these cases of chronic cholecystitis stagnation of the bile is brought about to the condition of semisolidity, making it difficult to secure adequate drainage; and the fact that it is difficult to secure adequate drainage makes it also difficult for the bile to find an outlet through the natural ways,—that is, the biliary tracts very easily become occluded by this thick bile. As I watch these cases after operation I find this thick, tarry condition clears at intervals or in a few days, and, I think, between the fifth and sixth day, usually, there is a return to a normal condition. Again, it happens not infrequently that it takes longer for it to clear up, and we should be governed very largely by the bacteriological findings in these cases before the removal of the drainage.

I am heartily in sympathy with many of the other points the essayist brought out.

With reference to the prevention of reoperation: I have had several times to remove gall-bladders that have been attached to the abdominal wall in years gone by, both in my own practice and in that of others, because it is not so many years since we were all attaching gall-bladders to the abdominal wall, and thought it was a matter of absolute necessity to do it to secure results. It is absolutely unnecessary, because in forty-eight hours from the time the gall-bladder is opened nature has walled off the drainage tract, and takes care of the flow, so that there is no likelihood of leakage into the abdominal cavity when the tube is removed.

DR. S. M. HOFF (Yankton): As has already been emphasized, there is very little one can criticize, but I would like a little more light on the fixation of the drainage-tube to the skin. As I listened to the paper, I wondered if it was really a fixation, and if it was not a fixation of the drainage-tube outward. The skin being elastic, pulling upon the abdomen, would it not be better to use this fixation suture, or stitch the tube into the parietes? The point emphasized of using a drainage-tube that is a fixed one, a solid form, and one that remains in for a long time, is well taken. Our habit is to use catgut, twenty-day chromic catgut, which will not absorb under fifteen days, and bacteriological tests made to determine the length of time drainage should continue. Good, solid, not necessarily non-absorbable, but longer absorbable catgut sutures are the ones that are usually used.

There is one other question I would like to ask and that is this: In our early experience we had considerable disturbance following operation on the gall-duets for several months, that is, there would be pain and aches in the region of the gall-bladder, which were not readily accounted for. We perhaps thought that rough handling or faulty technique was at the bottom, but experience shows that in the majority of instances this condition still prevails, and I find others have had the same experience. I would like to ask the doctor if he has had the same experience in his work. It will pass off in the course of a year, and it is my practice, if there is

subsequent pain or distress in the operative field, to inform the patient that it is due to adhesions which will eventually entirely disappear; and I have found that to be the case in many instances.

The removal of the gall-bladder is done today more than ever. I have never hesitated to remove the gall-bladder if there was any indication of permanent stricture. Stricture of the gall-bladder will frequently demand its subsequent removal. I believe it is good surgery to resort to cholecystectomy in every instance where you have evidence of long-standing stricture of the cystic duct. I have had several cases that have returned on account of subsequent difficulty as the result of the gall-bladder remaining, and recovery not ensuing because of the nonpatency of the cystic duct.

DR. BYRON A. BOBB (Mitchell): I am not prone to throwing bouquets to readers of papers, but I am exceedingly glad to have heard this admirable paper.

Many of you have been draining the gall-bladder through a stab-wound, but I have not. While I have drained for many other conditions in the abdomen through a stab-wound, I have not done this, nor have I seen it done before. When a man publishes something good in that line, it is well for him to get out a reprint with cuts to draw attention to it, so that all of us can make use of it.

There are one or two points I would like to refer to. In making a long incision in the abdomen, where more or less nerves are often severed, this is not so liable to occur where the incision is made in the median line; still there is liable to be a hernia from lack of nutrition. What is the objection to opening below the umbilicus in cases of pelvic trouble?

I am heartily in sympathy with the idea of long drainage. I have had the same sad experience that many of you have had of removing the tube too soon. Many of us do not have the facilities for making a bacteriological examination, nor the time to do it; and I am sure that in many of these cases I have had a return of the trouble from removing the tube too soon.

Another point: If the gall-bladder is infected, there is no question but what long drainage is needed. If it is not infected you can close the gall-bladder at the time you remove the stones, and not put in drainage. I have had other cases in which, as the doctor states, I stitched the tube to the abdominal wall, in order that it could not slip out. I have had a number of cases in which the tube has slipped out the next day: still the patients made a nice recovery, showing there was no infection of the gall-bladder. The stones are merely an incident in the matter.

I want to compliment Dr. Ruth again on his excellent paper, and to say that I shall put many of the points into use immediately.

DR. RUTH (closing): I thank the members of the association for the interest they have taken in what I have tried to present. Most of the things I have taken up in the article are the result of painful experience. They are departures from the usual custom.

I was not aware of anyone using regularly and systematically the median incision in gall-bladder work and accompanying it with a stab-drain. I got into the habit of making a stab-drain away from the line of the main incision in septic cases, as, for instance, in some of my appendicitis cases, ten or fifteen years ago; but I have been using this method in the gall-bladder only in the last two or three years. It appeals to me as a ra-

tional thing, because I think in the majority of cases I can keep the main wound free from possible contamination all the time. I realize that there are cases in which, in spite of care, infection is so vicious you do not feel justified in putting a double drain in the gall-bladder, knowing that you have had some infection beyond the gall-bladder or the surrounding territory. In that case you want a little wick drain or small tube for forty-eight hours to insure safety, sometimes carrying that through a part of the main wound, but that is all.

In regard to fixation of the tube: I am careful always to fix the tube in the gall-bladder, or, if I remove the gall-bladder, I carry a tube to the point where I think leakage is most likely (at the end of the cystic duct or it may be the common duct is open), but it must not be carried into the common duct beyond the point of probable leakage. Provision is made for the entrance of any septic material into the tube; and the tube is never tapped anywhere along the line from the end outward, because we do not want drainage of the material to get into the end of the tube, and have the contents drop out somewhere within the abdominal cavity. I attach the tube to the skin only for this reason. If there is a little pull on the thread that is attached to the skin, a sensitive patient will know about it. So take care the pull is not severe, or that it is not repeated.

I do not use a special suture with which to attach the other end of the tube to the gall-bladder. I use only plain catgut that will last anywhere from five to eight days. I do not care whether it lasts any longer than that, because I know I have got good tubal drainage outward from the gall-bladder provided by nature long before that time has elapsed.

In regard to determining the length of time drainage should be continued: Some very careful men do not make use of the point I have spoken of,—that is, it is my practice to make cultures of bacteria, or, as Murphy does, to make an inspection of the interior of the gall-bladder, note the condition, and, when there is no longer any sign of an inflammatory process in the gall-bladder,

—sew it up without reference to the amount of germs that may have been there and regardless of their number. I think you feel it easier to follow the other plan, and the last speaker referred to not making cultures. The other means available is inspection through a urethroscope or other small instrument. If one uses a large tube he can pass an instrument in, and determine the condition of the gall-bladder in an instant.

In regard to the patency of the common duct: We must absolutely know that the canal is free from obstruction before we remove the gall-bladder. I spoke about a stone being lodged in the ampulla of Vater. In the thousands of abdominal sections I have done I overlooked a stone once. I try to make a careful examination, and palpate the gall-bladder with considerable care; but I will not permit that to happen any more. Men with vastly more experience than myself have done the same thing.

As to the incision: I prefer a median incision. I have never found a case yet that I could not deal with through a median incision, quite as well as through a lateral incision. Dr. Cottam says he has. That may be true. In any case I could not deal with through a median incision I would make a secondary incision located more suitably, but I do not care anything about the length of the abdominal incision, because I am absolutely positive that if I can prevent infection from contact in that wound, I shall get strong union, and the patient will never have a hernia. That is a pretty broad statement to make, and maybe it is broader than I ought to make; but I believe it. I never approximate the abdominal incision by bringing the aponeurosis edge to edge. I do not believe we are justified in that. We have an opportunity to lap the aponeurosis so as to give a broad approximation instead of edge to edge. I infold the aponeurosis in my approximation, just as I always evert the peritoneum so as to leave the inner side of the abdominal wall absolutely smooth, and then there will be no adhesion of the abdominal contents to the line of incision.

## A PLEA FOR A MORE CAREFUL CASE-HISTORY AND EXAMINATION OF OUR CASES\*

BY BYRON A. BOBB, M. D.  
MITCHELL, SOUTH DAKOTA

It has been said that skillful and intelligent palpation is of inestimable value in surgical work; so also may it be said that careful history-taking and careful physical examination in general, is of still more value in arriving at accurate conclusions in any given case.

Sometimes a more accurate conclusion may be reached by a carefully taken history of a case than by any other method; but we must not stop at that, as, I am sure, many of us do. Many times you will recall that a patient came to your office, stating his case to you, and you, in turn,

have prescribed for him without any physical examination whatsoever, only to have him return to you in a week for more prescribing, and again possibly only a second inquiry on your part, with no physical examination. In a few days you were suddenly called, and found your patient in uremia, or in collapse and shock from a perforated ulcer of the duodenum, or great general edema or what-not.

You know, as well as I, that you act greatly surprised to find the patient in this serious condition; but you also know too well that this condition might have been prevented had you taken the pains to make a more careful examination

\*Read at the 33d annual meeting of the South Dakota State Medical Association at Watertown, May 27 and 28, 1914.



when the patient was at your office the first time.

Of course, I am aware that if the patient says that she was taken suddenly with severe pain in the upper right hypocondrium, said pain radiating back under the right shoulder, and to the epigastric region or navel, with severe vomiting, etc., that some of us might suspect that that patient really had something the matter with her, and he would place the patient on the table and examine her and tell her that undoubtedly she was suffering from an attack of cholelithiasis, and would advise operative measures. But hold! Our examination did not go far enough. In two days we are hastily summoned to this case again to find her in total collapse from the effects of a ruptured appendix, or a perforation of an ulcerated stomach. Here, again, a more careful examination, including urinalysis, blood-examination and stomach-analysis, would have cleared up the whole diagnosis at the first examination.

There are times when we put altogether too much confidence in the statement of the patients relative to the pain they claim to have, especially of the less educated, many of them not distinguishing between pain and other varieties of discomfort. Hence we must take their statements with a grain of salt.

As Cabot says: "When a patient who bears the ordinary marks of blooming health, states that he has been suffering excruciating pain for many months with lack of ordinary evidence of suffering, we naturally take his statement with misgiving."

When with the patient's statement, we see the face contorted, the body writhes and stiffens or doubles up, and he cannot sleep, is emaciated, and the appetite gone, we have sufficient evidence of pain.

I am also convinced that oftentimes we fail, in our abdominal and vaginal examinations, to secure as satisfactory results from palpations, as we might if we were to insist on better relaxation of the abdominal walls on the part of the patient. This requires some tact and skill on the part of the physician; and no sudden or painful manipulations should be made until, after coaching the patient, you have gained her entire confidence, so that by her co-operation you can procure the best possible degree of flaccidity of the abdominal walls. Then, and only then, should you attempt to make a vaginal or abdominal examination. It is still necessary to coach the patient, either directly or indirectly, to keep the muscles relaxed.

Frequently the findings which are perfectly plain under these conditions, are otherwise difficult and impossible to detect. This is true in cases of small or deep-seated growths, enlarged but retracted gall-bladder, diseased tubes or ovaries, etc. In some cases the flexing of the knees assists in making these examinations more effective, while, in others, you will find that the abdominal muscles are more tense when the knees are flexed.

Sometimes a patient has complained of more or less indefinite pains in the abdomen, and a careful examination has revealed no pathology, and the usual kidney palpation is negative, then, if the patient is turned over so as to lie on the other side, with the thighs slightly flexed, a floating kidney may be readily detected; or if the patient is placed in a sitting posture with the elbows resting upon a table, so as to secure abdominal relaxation, the kidney will be displaced inward and forward from its normal bed, and will then be easily detected.

Another point that is often overlooked, which is described as "pencil tenderness" by Dr. R. Hazen, is of significance, and is one which I have observed closely of late. I find it of great benefit in arriving at many findings, and it gives much more definite information than the hand or finger palpation will give.

Dr. Hazen said "this method was so simple and is still so accurate in the detection and clear-cut localization of tenderness that it is a surprise that it is not described in the text-books, and that it has not become a part of the routine method of surgical examinations in general practice." All that is required for this examination is a lead-pencil with a rubber eraser at the end.

We will take for example, a case of supposed beginning appendicitis. Perhaps every one of you would say, that with such a common disease as that nowadays one should have no trouble in the least with ordinary methods of examination to detect it; but when we remember that in the male abdomen there are seventeen conditions among which we must differentiate when thinking of appendicitis, and in the female there are twenty-three conditions that may produce symptoms and findings similar to appendicitis, we see how important it is that a careful and correct diagnosis be made before operative measures are suggested to the patient as, for instance, of a ureteral stone lodged just posterior to the appendix, or of an appendix adherent to the ureter. Therefore, any method that will assist us in the least should be appreciated by all of us, for none



of us is infallible, and any one is liable to error even though he uses all the methods at command.

The "pencil-tenderness" examination, as described by Dr. Hazen and as used by the writer, is made by placing the pencil perpendicular to the parts examined, with the rubber end in contact with the skin, when, after gaining the confidence and co-operation of the patient, the pencil is gradually pressed down, the patient noting the degree of pain. A point, a quarter or half inch from this point, is next examined, with about the same amount of pressure, and the comparative degree of pain elicited is noted. This is repeated at various points covering the area of the sensitive region.

The distinctness with which the outlines of a true surgical local tenderness can be mapped out and limited by this method, will be a revelation to all who have never applied the test. Hence a tenderness in an appendicitis which by ordinary palpation is located over an area of, say, two by four inches, may by this means be distinctly localized to an area of about one by two inches.

You can see that by ordinary palpation the pain and tenderness is induced by the displacement, or by the crowding of the surrounding organs or tissues against the point of disease, while by this method the tenderness from these factors is limited to the minimum.

Again, in a contused extremity if grasped with the hand the pain will be quite extreme, while if the pencil is used the pain will not be induced, as there is no crowding of the tissues; however, should you press the pencil down on the line of fracture of a bone or upon the point of a ruptured ligament very decidedly, a definitely localized tenderness will at once be evident; and therefore even the line of fracture may often be followed out, and you may differentiate a ruptured ligament from a simple strain of a joint.

It seems to me that oftentimes in examining our cases we disregard many of the laws laid down for our guidance, which, if simply incorporated in our thinking at the time of examination, would make a differential diagnosis easy. For instance, our present knowledge of the pathology and origin of so-called rheumatism, as Rosnow, Billings, and Murphy have pointed out, assures us that it is always a metastatic manifestation of a primary infection in some other portion of the body. Therefore, how much easier and better would be the diagnosis if we ascertained from the history taken in that so-called rheumatism whether, from eight to thirty

or forty days previous to the oncome of the arthritis, the patient had had chicken-pox, sore throat, boils on the skin, measles, scarlet fever, typhoid fever, an ingrowing toe-nail, or what-not, that might have been the primary infection, thus clearing up the diagnosis and giving us the opportunity to remove the cause at once.

Again, there are well-known laws concerning certain conditions to be taken into account in a blood-examination. Splenomedullary leukemia, for instance, often handled by five or six physicians during a period of three or four months before it falls into the hands of one who makes the ordinary differential blood-count, and so finds the large mononuclear cells increased to 35 or 40 per cent, and very many myelocytes. As no other condition gives this characteristic blood-count, it is a law.

And again, a patient comes to you who a few weeks before had a fall and fractured the hip, and an enormous callus forms, say, as large as a peck measure. You think of an injury to bone because of such sudden enlargement. Why, of course, it is a sarcoma; but "the law" is laid down,—a sarcoma is never the sequence of a fracture, but may be the sequence of a milder injury to a bone.

Thus there are many laws that are laid down for our guidance, the use of which, if we would recall them when examining our patients, would simplify diagnosis very much.

Our experience as a surgeon for the short period of eight years teaches us that very many of the cases referred to us have been gone over very superficially, and it seems to us that a plea for a more careful and painstaking examination is not amiss at this time.

#### DISCUSSION

DR. H. H. SHERWOOD (Humboldt): Dr. Bobb has brought out a great many good points. All of us, I presume, will have to plead guilty to the accusation he made, that we do not examine our cases carefully enough, and that a careful examination oftentimes would render the diagnosis more easy and more correctly made. I did not notice the article the doctor spoke of about the pencil, but I have been practicing palpation with the end of the finger for a long time, and I find it is a great help in diagnosing lesions in the abdominal cavity. I have done that for some time. It has been my practice to go over the abdomen with the finger, and I have found out that oftentimes it gives a very definite idea in these cases as to whether we have to deal with gallstones or with appendicitis. There are a great many practitioners who have had experience in operating, but who fail in the diagnosis of these conditions. Some practitioners who never operate fail in these cases occasionally themselves. But it is a great help to diagnose between the two conditions by going over the

abdomen with one finger. I suppose the use of the pencil is more definite. I shall try this in the next case that presents itself.

DR. T. F. RIGGS (Pierre): I think the paper presented by Dr. Bobb is one of the most practical we have had at this meeting. I know that we are all guilty of careless examinations, and even more guilty of careless history-taking. I do not say that any one of us is guilty in every case, but, as a rule, we are all guilty as charged in the indictment brought by Dr. Bobb.

In this connection I am reminded of a certain competitive examination which took place in one of the eastern hospitals. There were seven men with one opening. The seven men had passed the semifinal examinations, and were practically on a par. One at a time they were taken into a room and shown a patient. Six of the men sat down, put their hands on the patient, asked a few questions, and came to the same diagnosis. The seventh man got the history, then started at the patient's head, and finished at his feet, and made his diagnosis. He was appointed. The men all made perfect diagnoses, for it was as plain as the nose on your face. The only point was who did the best job. The man who sat down, took a careful history of the case, and then started at the top and went to the bottom in his examination, was the man that they could count on; and that is the point which I wish Dr. Bobb had brought out more forcibly,—careful case-history and careful systematic examinations.

DR. F. M. CRAIN (Redfield): This paper is certainly one of the most valuable contributions we have had at this meeting of the Association, and while it is written from the standpoint of a surgeon, it is quite as applicable from the standpoint of the internist or the general practitioner.

I presume you are all more or less familiar with the investigation that has been carried on in the Boston City Hospital by Dr. Cabot, who is said to be one of the best diagnosticians in the United States. I do not recall at this time the percentage of failures in diagnosis that have been made in his investigation; but it is remarkable from the post-mortem findings and the findings in the hospitals in Boston in how large a percentage of cases errors in diagnosis were made. To be a good diagnostician is to be a good physician, and to be a good diagnostician is to be a good surgeon, if one is doing surgical work. Very few men can be classed as good diagnosticians, because very few men apply themselves, and are thorough and persistent enough in making diagnoses. This is very largely true in cardiovascular diseases, kidney trouble, etc. How often we make a mistake in overlooking the function of the kidney, examining the kidney carefully and examining the urine, not only once but twice or three times or dozens of times before we are able to find out that the patient is suffering from a slowly developing nephritis! I have a case in mind now where a physician examined the urine of a patient frequently without finding albumin in the urine. The patient had some symptoms of developing Bright's disease. The physician examined the urine many times, and found no evidences of albumin. He examined the quantity, and it was normal; the specific gravity was within a safe limit; and yet that patient was developing all this time a case of Bright's disease. It is true, he had some symptoms,

such as a tired feeling, a little stomach difficulty, and was easily fatigued. The least exertion would fatigue him, and after frequent and repeated examinations the physician was rewarded by the discovery of albumin in the urine. We sometimes make a hasty examination of the urine for albumin. We choose the acid test. We drop the acid, wait a little, do not see anything, and conclude there is no albumin. We put the tube aside for a little while, there may be traces of albumin, but they do not show up for a few minutes, yet in five or more minutes you will find distinct traces of albumin, and when you find traces of albumin week after week you can rest assured you have a slowly developing case of nephritis, which takes the patient sooner or later. Not only by a chemical, but by a microscopic, examination will you be deceived. You will find casts sometimes in small quantities, and then again in quite large quantities. It is in cardiovascular diseases where we need to examine the kidneys, as the result will largely direct the course of the surgeon. The surgeon will be more careful if he knows he has a case of Bright's disease to deal with. I remember the case of a wealthy man of New York City on whom an operation was performed. He was put on the table, given an anesthetic, and during the operation he died. A post-mortem revealed a well-advanced case of chronic Bright's disease. No patient ought to be given an anesthetic who has symptoms of kidney involvement or cardiovascular trouble without a careful examination of the urine. In the emergency cases we cannot always resort to a careful urinalysis.

DR. SHERWOOD: What a pity it is that the great bulk of the country practitioners in the State of South Dakota have not been here to hear these two papers. Someone said in discussing Dr. Grove's paper that he used more than ordinary skill. I believe we all admit that, but, it seems to me, we can see the handwriting on the wall, that the time is coming very soon when country practitioners have got to wake up. We have got to be more careful in diagnosis, and we must develop skill, in order that we may handle emergency cases properly.

DR. S. M. HOHF (Yankton): If we learn nothing else at this meeting this week, but the one point brought out in this paper,—proper and efficient and thorough history-taking and examination,—we may consider our time well spent.

From the standpoint of the general practitioner I want to emphasize a point that I tried to bring out yesterday in a discussion. A man without a complete history is like a ship at sea without a rudder; and without a thorough examination he is like a ship at sea without a propeller. Without thorough examination, which presupposes a diagnosis, how can treatment be efficient and successful? From the standpoint of the specialist, how many times do we find a general practitioner referring cases to us in which he has fallen down in his diagnosis; that a grievous mistake was made for no other reason than that there was not a careful history taken and he was careless in his examination.

The old methods of the practice of medicine are no longer in vogue. We cannot simply ask a few questions of patients in our offices, casually prescribe, and let them go. We must examine them, and, first of all,

get a clear, clean-cut history, if possible. Let us emphasize practical history-taking, which will lead us then to make a thorough examination. As has been pointed out, the practitioner of today must be in a position to do these things. If he cannot, it is up to him to refer his patients to others who are more competent. But nowadays it presupposes again that every general practitioner should be qualified to make all routine laboratory examinations that are necessary to aid him in making in the majority of instances a proper diagnosis. If he cannot do so, it is up to him to get in a position to do it; otherwise the other fellow will. When patients are not successfully treated, you cannot blame them for going to the other man. If they perchance do it, they drive them to the quack and pettifogger, who knows nothing about medicine; and it is because so many general practitioners fail to give them the services they expect, and there is no one to blame but the individual himself. Qualify yourselves to practice medicine, and when you have done that you qualify yourselves to become diagnosticians.

Let me speak of another point: to my mind the internist is a bigger man than any specialist. It takes more brains to practice internal medicine than it does to do surgery; it takes more brains for a man to practice internal medicine than to poke around the eye, the nose, or the throat. I have found it so. The general practitioner should control the situation; and it is a sad commentary on internal medicine when a specialist meets so frequently with the grievous mistakes that the internist at the present time is making. It is up to him and to the general practitioner in the country districts to overcome the stigma, which they can do, if they will, by giving patients a little more care and more thorough attention in their offices by stripping them. Never hesitate to bare a patient, male or female, and get next to the lesion. Oftentimes—and I am guilty myself—I have seen nothing but a casual attempt made to make an examination of patients with steel-rodged corsets on and clothing. It is impossible to make a satisfactory examination under such circumstances. These patients should be stripped to the skin; and I do not believe you will embarrass many of them in asking them to do so. You will win their confidence in this way. If you cannot arrive at definite conclusions the first day, do it the second day. If you cannot do it the second day, do it the third, the fourth, or the sixth day. It may take several weeks to make a satisfactory diagnosis in some cases, and if you feel you cannot do it yourself, call in someone to help you.

This paper has emphasized a point which I hope the

general practitioners and specialists will take to heart, and go home and apply some of the good, sound principles the essayist has inculcated.

DR. J. G. PARSONS (Sioux Falls): I think we all agree with Dr. Bobb, and with the opinions that have been expressed by those who have discussed the paper. Most of these discussions have been in the direction of what we should feel with our fingers and hear with our ears, mostly what the patient tells us, and what we can palpate.

I do not want to let this opportunity pass without calling attention to one thing which is a valuable aid in diagnosis, and that is the use of inspection. The use of inspection as a means of diagnosis is of vital importance to every practitioner. I think there is too great a tendency on the part of practitioners, regardless of the special lines they are interested in, to depend upon history-taking, palpation, and laboratory diagnosis, and not use their eyes. There is no one means of acquiring information in this world that compares with seeing, if it is possible to see it, particularly since we have the modern endoscopic methods at our disposal.

I would urge practitioners to make habitual use of the head-mirror in going over their cases. It is not only valuable in nose and throat cases, but in a lot of other places. It is a valuable means of diagnosis.

DR. FRANK C. SMITH (Yankton): The specialists have been ably defended by Dr. Parsons, and while the discussion is fresh in your minds, I will say, with reference to the experience Dr. Crain has just cited, that the patient was Colonel Elliott F. Shepard, of New York City, a noted newspaper man, who was the son-in-law of Commodore Vanderbilt. The incident happened in the service of Dr. Charles S. McBurney, a man of international reputation. These accidents may happen in the practice of men who are unquestionably men of ability, but in this instance the condition of the kidneys of Colonel Shepard was overlooked. I thought I would mention this to emphasize the point brought out in reference to care, which men do not exercise to the extent they might.

DR. BOBB (closing): Dr. Parsons spoke of the importance of using the eyes. I merely mentioned observation. Have the patients walk into a private room, see how they sit down and get up, and have them tell the story about the symptoms of their condition. Get them to tell the story, ask a few questions, and let them tell you what their condition has been, and what it is at the present time. All that can be brought out without questioning them very much.



# THE JOURNAL-LANCET

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## THE TRANSFUSION OF BLOOD

In the past few years an effort has been made to transfuse blood from a normal individual to one who is in immediate danger. Many are the methods and devices for this purpose, and yet the results are not satisfactory.

In the Medical Record, New York, January, 1915, Lewisohn has an article in which he describes an exceedingly simple method. Two patients received transfusions of 300 c.c. and 500 c.c. without untoward symptoms. The blood from the donor is allowed to run through an ordinary cannula into a glass jar which contains 5 c.c. of 10 per cent solution of sodium citrate. While the blood is running into the receiving jar it is stirred with a glass rod in order to secure a good mixture. The combined solution is then poured into an ordinary glass funnel, which is connected with the cannula of the patient by means of a rubber tube. The whole process can be accomplished in about five minutes. This method is supposed to do away with clotting and difficulties that commonly take place in an elaborate apparatus.

Transfusion of blood may be used in typhoid patients where hemorrhages have occurred. In protracted cases particularly, the results of transfusions have, in a few cases, been accompanied with brilliant results. In pernicious anemia the

results have not been so gratifying, although in some cases in which splenectomy has been performed, transfusion was used before and after the operation with marked benefit. Selected cases give the best record. Those showing petechiæ, hemorrhage, mental disturbance, or spinal cord involvement are classed as unfavorable for the operation. In pernicious anemia many patients are benefited temporarily only, but the remedy is wholly justifiable if performed early in the disease. The advanced cases are not good subjects and repeated failures may be anticipated. Transfusions may be repeated during the course of an anemia without detriment. Dr. Willy Meyer advocates the injection of human blood serum in hemophiliacs and in patients suffering from chronic jaundice. Both methods may be combined.

Ottenberg and Libman have studied 212 transfusions in 189 cases at Mount Sinai Hospital. Eighty-five cases, or 45 per cent, were successful in that the patients were greatly improved, and forty-two of these, or 20 per cent of the whole number, were actually live-saving. Of the successful cases (85) in which the prognosis was bad, forty-two lives were saved, twenty-nine subsequently recovered, and, in thirteen of the cases, the underlying disease continued.

Of the one hundred and four unsuccessful cases there were temporary gains, but the original disease continued and death ensued. In cases of surgery in which preliminary transfusion was made, and in those in which postoperation hemorrhage or shock occurred, the results have not been good, except in a few cases. In cases of hemorrhage from gastric or duodenal ulcer and ectopic pregnancy the outcome has been highly successful.

In bacterial infections transfusion is of value in restoring the general systemic resistance. In gas poisoning transfusion is almost a specific provided it is accompanied by phlebotomy.

## THE MEDICAL TOLL OF WAR

The great war has already demonstrated the enormous loss of life among professional and scientific men. Artists, writers, poets, jurists, musicians, teachers, and medical authorities have been slain in battle. The names of those of established reputation and of those whose work, after long years of study, was just beginning to bear fruit, head the list that will grow until the war is ended. The total cost to humanity, owing to the destruction of valuable lives, cannot be

fully estimated until decades have rolled by, if at all.

Dr. Bertheim, the greatest recent authority on organic arsenic compounds, was one of the first German soldiers slain in the present war. Without Bertheim's researches Professor Ehrlich would not have discovered salvarsan, one of the most conspicuous achievements of the day.

Had the war occurred in 1909 instead of 1914 and had Bertheim been lost at the earlier period, the loss to humanity would never have been known. Now that we know the value of the labors of Bertheim and Ehrlich we can appreciate the gain to the whole world in the preservation of their lives these few years. Salvarsan is known wherever medicine of any kind is employed, no matter how remotely the medical station lies.

The obituary notices, published from time to time in the British and Continental medical journals, of young medical men serving at the front, contain the names of many who had already won fame, and a larger number whose future career was practically guaranteed by original work and study. One of the dead had been investigating the problem of sleeping sickness in Africa and had hoped to bring his work to a practical conclusion, but had left it to attend the wounded under fire.

The histories of medical men who have dropped their work at home cannot now be recorded. Many are dead, many are missing, or are prisoners.

Emile Raymond, a Senator for the Loire, and a surgeon of distinction, was killed while fighting for France. Dr. Albert van Gehuchten, a Belgian neurologist of international reputation, died at Cambridge University from the indirect effects of the destruction of Louvain and the loss of his manuscript records of the last ten years of his life.

The list of crippled surgeons that may eventually return to their homes will doubtless be large, but of their future possibilities, who can estimate the value of their work?

It may be argued that others will rise to take the place of the dead and wounded, but with the shadow of war, poverty, and the elimination of the strong from the ranks of medical workers, it will be years before the bitterness will subside and medical harmony be reestablished between the nations. It has been reported that surgeons of various nationalities work together in the field hospitals without rancor, but when the war is

over, if our own civil war is a criterion, the majority of these men will not advance the science of surgery to any great degree; rather will they shine in reflected glory and find themselves relegated to minor medical positions. Some will achieve greatness because they are men of large calibre, but the horrors of their experience will overtop the future.

The wholesale destruction of human life and the hasty treatment of the immense numbers of wounded soldiers will not be of great or lasting value to medical science.

War may be scientific murder, but, according to Herbert W. Horwill in the *MARCH ATLANTIC*, it is an approximation to suicide. Romain Rolland calls it "A sacrilegious conflict which shows a maddened Europe ascending its funeral pyre, and, like Hercules, destroying itself with its own hands."

Under such a definition we may expect the fit to perish and the weak to further the population of the warring countries. Medicine and surgery may gain in some minor details, but the killing and maiming of surgeons will be the great loss and cost to humanity.

#### THE COUNTY SANATORIUM LAW

The repeal of the County Sanatorium Law has been propounded in the legislature of 1915, and Saturday, April the 3rd, was again advocated by Representative Charles L. Sawyer, of Minneapolis, a member of the House Appropriations Committee.

Although, at the time of this writing, no action has been taken, it is well that all interested in tuberculosis should carry firmly in their minds the need for watchfulness, lest the splendid work so well begun in this State under this law should be hampered or even done away with.

We are too apt to think that when a certain good law has been placed on the statute books, the particular matter dealt with has been thereby permanently taken care of. We are too apt to forget that eternal vigilance is the price of safety, even in tuberculosis public health work, and even with the County Sanatorium Law still in existence.

It must be remembered that this law, like many others, can be made of no avail, without abolishing it or even amending it, by merely denying the appropriations necessary, or by making them inadequate. This indirect method of nullifying anti-tuberculosis work in this State has now actually been carried out so far as the

House Appropriations Committee is concerned, first, through the reduction by over one-fifth of the amount required for state aid maintenance by counties which have already built or are building, and, second, through the refusal of any sums whatever to those counties which have not yet actually begun operations. In brief, the House Appropriations Committee has only met, grudgingly and inadequately, the actual obligations imposed by the law, and has completely estopped all further tuberculosis work along the same lines for the next two years, at least.

Blue Earth, Marshall, Roseau, and Wadena Counties, with some others, have taken actual steps toward the building of county sanatoria, and still others, to the number of twenty in all, are looking forward to making levies at the July meetings of their county commissioners; but, if no state appropriations are then available, these twenty counties will necessarily leave the sanatorium project untouched for two years more. The remaining thirty-seven counties where no actual steps have yet been taken will be in the same plight.

When it is remembered that these appropriations are contingent only, that the money is not spent except as state aid, and then only when the counties have put up an equal sum for the site, construction, and equipment, or have actual free patients in their beds, it will be understood how gratuitous the cutting down of these appropriations is and how strongly it indicates not economy, but a definite opposition to the abolition of tuberculosis in this State. We hope that it may not yet be too late to influence the Representatives and Senators on the floors of their respective chambers to modify the appropriations bill before its final passage, and we urge all our readers to take such steps as they can with their Senators and Representatives to secure at least \$500,000, if not \$700,000, for county sanatoria in the next two years.

#### THE FEBRUARY MEETING OF THE HENNEPIN COUNTY MEDICAL SOCIETY

The February meeting of this Society was unique in that it was the first one, devoted entirely to the subject of Focal Infections, to be held in the Northwest. Papers were presented by one Internist, one Bacteriologist, one Dentist, one Rhinologist, one Oculist, and one Röntgenologist. The papers of Dr. F. B. Kremer and Dr. E. H. Parker have appeared in the two previ-

ous issues of THE JOURNAL-LANCET and the rest are to follow. We desire to call particular attention to this series of papers because of the fact that collectively they are a symposium, covering all phases of this interesting subject. To obtain the most benefit from these papers they should be read with the idea that each paper bears only upon one side of the question.

## MISCELLANY

### WHY WE SHOULD HAVE A WAR AGAINST CANCER

It is a fact that cancer kills about 75,000 people in the United States every year. Any disease which causes such a high annual toll should command the careful attention of the Government, the medical profession, and the people. The need for this careful attention is all the more imperative if both the morbidity and mortality can be very largely reduced by co-operation on the part of these three forces, i. e., the Government, its people, and their physicians.

The reduction that has been caused in tuberculosis is now a matter of history. There can be no doubt that similar well-directed and persistent activity would cause a similar effect in cancer.

The key to the reduction of cancer mortality lies precisely in this: That cancer always begins as a purely local disease involving a strictly limited area. Second, that this limited area is accessible in about four-fifths of all cases; and third, and most important, a commencing cancer practically always indicates its presence when it is still in its early, locally limited, and permanently curable stage. In other words, the enemy that we have to fight is not the cancer, but the delay. Nearly 60,000 of our people die every year, not because they have cancer, but because they have waited till the cancer became incurable.

The causes for delay are, first, that the people know little or nothing about cancer. The layman or laywoman does not know that certain evident signs and symptoms mean that cancer is insidiously creeping on them and will be fatal unless recognized and checked in time. So that a large proportion of our 60,000 unnecessary cancer deaths occur because the people do not know. If a woman has a right to kill another human being to save her own life when attacked, how much more has she the right to know that a fatal disease has begun its attack on her? A



woman who loses her life at forty simply because she never knew that irregular vaginal bleedings indicated the presence of a cancer while it was in its early curable stage certainly has not had her fair chance at the hands of civilization. If our people are dying because they do not know, we, the doctors, must teach them. We must teach women that a lump in the breast, no matter how small or how painless, may be the starting point of a serious condition and must at once be investigated by a competent physician. We must teach women that irregular vaginal bleeding, the onset of a discharge, etc., may be early warning symptoms of cancer of the uterus. We must teach all people that a mole or a wart which begins to grow, bleed, or ulcerate, is a danger sign that must be heeded at once. There are similar early signs in other portions of the body that may forewarn people, and of which they should have accurate knowledge.

There is also a great field in the conditions marked by chronic irritation and the so-called precancer lesions. Recent statistics show that in about forty per cent of cases the cancer, the malignant disease, was preceded by long-continued simple diseases or by some form of chronic irritation. In other words, a large proportion of cancerous people need not have had the disease at all if they had been forewarned and had their precancerous condition cured.

The second great problem lies with us as medical men. Are we as active in the treatment of precancerous diseases as we should be, or do we only too often put our patients off with some placebo and advise them not to worry? Do we always insist on a thorough examination when a patient comes to us with symptoms that may mean cancer? When an early cancer is present, do we always lay proper emphasis on the necessity for proper treatment at once? Do we not too often advise the one course which can yield disaster and tell our patients to wait and see what develops, i. e., wait till the cancer becomes inoperable? Unfortunately at the present time these questions must be answered to our disadvantage. A recent extensive investigation has shown that on an average the family physician has had his cases of cancer under observation for about a year before they come to a real attempt to cure the disease. Our attitude to cancer needs to undergo a radical change. The average of one year's observation must be cut down to a few weeks, or, best, to a few days. Immediate attention to the precancerous condition, counsel in the doubtful cases, and immediate

action in the positive cases, is the only proper service we can give our patients. To do this, we need a campaign amongst ourselves, too. A new and more efficient spirit must be created which will result in constant watchfulness to keep our patients from swelling the thousands of untimely and unnecessary deaths from cancer.

To arouse the profession fully to the necessities in the war against cancer, a movement has been started by which, during the present few months, State and County Societies all over the country are devoting special meetings to the study of cancer, and in addition, the vast combined influence of American medical journalism has been enlisted, and THE JOURNAL-LANCET has united with fifty other medical journals to provide for its readers special cancer numbers. It would seem from the number of journals co-operating that the message must be brought directly to every medical man. We are sure that in this way the interest of the medical profession will be aroused for years to come, and we are sure that the time will be soon at hand when no blame for participation in the fatal delay can ever be laid at the door of an American physician.

#### THE PAN-AMERICAN MEDICAL CONGRESS

The Seventh Pan-American Medical Congress will meet in San Francisco, June 17th-21st inclusive. It assembles pursuant to an invitation of the President of the United States, issued in accordance with an act of Congress approved March 3, 1915.

The countries and colonies embraced in the Congress are the Argentine Republic, Bolivia, Brazil, Canada, Colombia, Cuba, Chile, Costa Rica, El Salvador, Ecuador, Guatamala, Honduras, Haiti, Hawaii, Mexico, Martinique, Nicaragua, Panama, Paraguay, Peru, Santo Domingo, United States, Uruguay, Venezuela, British Guiana, Dutch Guiana, French Guiana, Jamaica, Barbadoes, St. Thomas, and St. Vincent. The organization of the Congress is perfected in these countries, and the majority of them have signified their intention to be represented by duly accredited delegates.

The Congress will meet in seven sections, viz.: (1) Medicine; (2) Surgery; (3) Obstetrics and Gynecology; (4) Anatomy, Physiology, Pathology, and Bacteriology; (5) Tropical Medicine and General Sanitation; (6) Laryngology, Rhinology and Otolaryngology; (7) Medical Literature.

All members of the organized medical profession of the constituent countries are eligible and are invited to become members. The membership fee is \$5 and entitles the holder to a complete set of the transactions. Advance registrations are solicited and should be sent with membership fee to the Treasurer, Dr. Henry P. Newman, Timken Building, San Diego, California.

The general railroad rate of one fare for the round trip, good for three months, made on account of the Panama-Pacific Exposition at San Francisco, and the California Exposition at San Diego, is available for the Pan-American Medical Congress.

The Palace Hotel will be headquarters.

The First Pan-American Medical Congress was most successfully held in the United States in 1893. Five intervening Congresses have been held in Latin-American countries. It now devolves upon the medical profession of the United States to make this, the seventh, the most successful in the series.

## REPORTS OF SOCIETIES

### THE HENNEPIN COUNTY MEDICAL SOCIETY

The regular monthly meeting of the Society was held in the Library Rooms, Donaldson Building, Monday, April 5.

President Farr was in the chair and eighty members were present.

Clinical cases were presented as follows:

Dr. A. E. Hedbeck presented a case of Addison's Disease.

Dr. H. G. Irvine presented two cases:

A case of Lupus Vulgaris of the nose and face.

A case of Pemphigus Vulgaris.

Dr. S. E. Sweitzer presented a case of Leukemia.

Dr. J. M. Lewis presented a case of Vincent's Angina.

Dr. Archibald Wilcox presented three cases of fracture which had been treated by open operation:

A case of Pott's fracture.

A case of compound fracture of the tibia and fibula.

A case of compound multiple and comminuted fracture in the upper third of the leg.

Dr. C. N. Spratt presented a case of transplantation of a vein from the forearm for a tear duct.

Dr. A. T. Mann presented a case of fracture of the skull.

Dr. J. G. Cross presented a case of musical diastolic murmur of the heart.

Papers were read as follows:

Pollenallergy, by Dr. J. A. Watson, discussed by Dr. Henry Ulrich.

Anesthetic Shock, by Dr. J. Frank Corbett, discussed by Drs. E. P. Lyon, C. G. Weston, S. Marx White, F. A. Dunsmoor, and R. E. Farr.

A report was given of a case of Hypernephromia, with metastases in the cervical vertebrae, by Drs. J. H. Stuart and A. S. Hamilton; with autopsy findings by Dr. Johnston, of the University.

The following were elected to membership:

Dr. Geo. M. Haywood, Dr. John W. Lee, Dr. Chas. Erdmann, Dr. L. J. Coria, and Dr. F. J. Souba.

S. R. MANEINER, M. D., Secretary.

### THE MINNESOTA NEUROLOGICAL SOCIETY

The regular meeting of the Society was held at the University Club, Minneapolis, March 15, 1915. The program was as follows:

Dr. W. A. Jones, Minneapolis, reported three cases of brain tumor which are to be published in full in a later issue of THE JOURNAL-LANCET, and a summary of which follows:

Case 1. A woman, from Doyon, N. D., 32 years of age, who had early in January an attack of severe tonsillitis, from which she apparently made a good recovery. But before the end of the month she had begun to lose her vision in one eye and suffered pain in her head. The onset of the symptoms was rather sudden and was accompanied by mental confusion, and dullness. A diagnosis of cerebellar abscess was made. The cerebellum was exposed and the bone was removed down to and into the foramen magnum which exposed the pons and medulla. There was no abscess found in the cerebellum, but about two ounces of cerebro-spinal fluid were more or less confined under the membranes and this was released. The patient improved only to a slight degree and three weeks later died. Three abscesses were found in her brain at postmortem, all of which were inaccessible and because of this fact they were not completely broken down.

Case 2. A man from Paynesville, Minn., 22 years of age. Was well until December, 1914, when his eyesight failed but nothing was found to be wrong with the fundi. In January, 1915, he was unsteady in his gait and had a form of word deafness. He had no objective signs of paralysis. A diagnosis of cerebello pontine tumor was made; the cerebellum was exposed, and great pressure was found under the explored area, but no tumor was visible. The patient died in six hours. At postmortem a large tumor, involving the pons and medulla was found, not reachable and an inoperable case.

Case 3. A boy 11 years of age from Lamberton, Minn. Up to January, 1915, he complained of headache, followed by vomiting of bile stained material. His vision was found to be poor and he had a little strabismus. In August he had a convulsion and from that time on until December 30, 1914, he had repeated convulsive attacks, of the petit mal variety. From his symptoms, his gait, and the absence of symptoms pointing to any other region, the cerebellum was the point of attack. He was operated upon and a tumor found on exposure and enucleated as far as possible. He lived for five days and then died. Postmortem showed a multiple tumor involving the entire brain. It was estimated that between 50 and 60 tumors were present, the majority of them being small and the largest reaching the size of a pecan nut.

Dr. L. M. Crafts showed the following case of disseminated sclerosis:

Mr. J. A., 49, married, retired farmer. Family history not notable. Previous health good, no venereal history, habits good.

Twelve years ago had attacks of extreme headache during the forenoon for several successive days, pain of lesser severity for some time. Never felt well since. About five years later had some stomach disturbances, gradual development of a prickly, numb feeling in left side, and difficult speech. The numbness cleared up and a tremor developed in the left hand.

During last three years he has had increasing trouble in using left leg and greater speech disturbances. Has diplopia at times, and vision is not as clear as formerly. Memory not as good. Good deal of dizziness of late.

Pupils negative; movement of eyeballs to left limited; coarse lateral nystagmus. Cannot close left eye; left side of face less mobile than right; speech thick and measured; tongue free; arm reflexes dull; no sensory disturbances; no loss of muscle sense. Distinct intention tremor in left hand; Patellar and Achilles response absent. Plantar diminished. No Babinski or Oppenheim; cremaster slight; abdominal abolished. Walks with moderate ataxia; moderate ataxia of station; pulse 68; pressure 140 mm. Wassermann of blood negative; all three reactions in cerebro-spinal fluid negative. During last three weeks having fibrolysin every 5 days; speech improved; less tremor in hand; walks somewhat better.

Dr. Crafts also reported the following case of juvenile paresis:

Miss M. B., 23, single, clerk. Father died of paresis at the St. Peter State Hospital ten years ago. Mother had several miscarriages and one stillborn.

Patient was always frail; about twenty months old when she walked; slow in teething. Quite bright, and went as far as eighth grade. Has always had a lisp in speech. Been working at one place for eight years, until four months ago when she had to stop on account of her health. Speech grew thick, troubled with dropping things. Been losing flesh for a year and growing weak. Has had a jerky trembling of arms and lips. Mental capacity has been deteriorating rapidly. Has been having "queer nervous spells" of late.

Poorly developed and nourished; expression dull; a marked tremor of the lips and tongue; left pupil moderate size, not circular, reacts fairly well; right is small and immobile. Two upper middle incisors

are typical "Hutchinson teeth." Face more mobile on right. Can pucker lips fairly. All deep reflexes abolished. Moderate ataxia of station and in walking. Some incoördination in arms. Palms of hands and soles of feet thick and leathery. Mentality much reduced, speech slow, halting, and poor enunciation.

Examination of the spinal fluid showed a positive Wassermann, a positive Nonne, and a lymphocytosis.

A. W. MORRISON, M. D., Secretary.

#### THE HENNEPIN COUNTY MEDICAL SOCIETY

At a special meeting of the Society, called by a petition signed by nine members, the bill now before the Minnesota State Legislature dealing with the Mayo-University Affiliation was approved and the support of the Society was unanimously accorded it.

S. R. MAXEINER, M. D., Secretary.

#### THE ST. LOUIS COUNTY MEDICAL SOCIETY

At a special meeting of the Society held March 31st, the following resolution was passed:

Be it resolved, That the St. Louis County Medical Society is opposed to the affiliation of the University of Minnesota with any private institution.

#### THE MINNESOTA PATHOLOGICAL SOCIETY

The annual address was given before the Society on March 30, in the Institute of Anatomy, on the University Campus, by Dr. John F. Anderson, Director of the Hygienic Laboratory, Washington, D. C. The subject of the address was "The Present Status of Our Knowledge of the Etiology and Distribution of Typhus Fever."

The meeting was well attended,—about one hundred and fifty being present. A short abstract of the address is given below:

The address comprised a report of the work done by Dr. Anderson and Dr. Goldberger. Part of the work was done in Mexico and part in various portions of this country. It was demonstrated in the address that typhus fever is not the unknown disease which it is commonly considered to be, but that it occurs in the proportion of about one case of typhus to forty-seven of typhoid, based upon statistics from the Massachusetts General Hospital. Some statistics for New York City would indicate that the ratio is nearer one to three or one to four.

The description of an acute infectious disease described by Dr. Brill, of Mt. Sinai Hospital, was taken up in the address, and the identity of this condition with typhus fever has been demonstrated by varied experimental evidence which has been developed along lines of immunity reactions. The virus of



this disease is not known, but it has been demonstrated not to be filterable.

The method of transmission of the disease was considered and it has been pretty well demonstrated that it is carried by lice. The spread of the disease indicates its conveyance by some form of insect. The occurrence of the disease in surroundings of filth indicates some such mode of transmission. The fact that the disease does not spread among people of cleanly habits, though it occurs in isolated cases, and the fact that efficient prophylaxis may be secured by systematic destruction of lice, indicate that this hypothesis is correct.

Experimental work has shown that the virus occurs in the blood of the patient throughout the febrile period and for some hours after the subsidence of the fever.

The address should be of great importance to clinical men in calling their attention to the fact that typhus fever is not an unknown or rare disease, but a fairly frequent though unrecognized disease.

F. L. ADAIR, M. D., Secretary.

## CORRESPONDENCE

### A MALPRACTICE SUIT

TO THE EDITOR:

A rather queer circumstance in regard to malpractice suits has just come up in Cloquet, which I think should be called to the attention of the medical profession at large. Briefly it is as follows:

Drs. Dolan and Fleming maintained a hospital in which to care for their contract cases from the woods. They were in partnership on the contract work only.

In February, 1914, Dr. Dolan cared for a patient (contract work) suffering from a broken tibia; the fracture was comminuted and a nasty one. After several weeks in the hospital the patient was allowed to go, returning to the office for treatments as necessary up to May, when he was seen for the first time by Dr. Fleming in Dr. Dolan's absence.

Suit was brought against Dr. Dolan sometime late in the fall, but because of the doctor's illness, was carried over to the next term of court.

Dr. Dolan died in December, and now in March, Dr. Fleming is made defendant in a \$15,000 damage suit.

He has had to defend this suit against a man whom he never treated until three months after the accident, and the sad part of it is that the plaintiff, a drunken and worthless fellow, had no trouble in finding two physicians in good standing in their county society who, for a fee, did not hesitate to disparage the work of a dead

man, who at the time of his death was president of his county society and held in high esteem.

Since writing the above I have learned that the jury brought in a verdict against Dr. Fleming for \$2,000. In addition I might say that the plaintiff has a good servicable walking leg with less than an inch of shortening.

This incident goes to show that when it is so easy for disgruntled patients to hire a lawyer on a contingent fee basis and to buy adverse medical opinions in the form of expert medical testimony, it behooves us all to be extremely careful in handling surgical cases, and to carry plenty of first class liability insurance.

Yours truly,

ALEXANDER BARCLAY, M. D.,  
Secretary.

The "experts" did not belong to the Carlton County Medical Society.

Cloquet, Minn., March 16, 1915.

## BOOK NOTICES

THE YEAR BOOK OF THE PRACTICAL MEDICINE SERIES. Vol. viii, 1914. Edited by Messrs. Butler, Favill and Bridge. Price, \$1.50. Price of series of 10 vols., \$10.00. The Year Book Publishers, Chicago. Therapeutics 277 pages; Preventive Medicine, 50 pages; and Climatology, 10 pages.

This convenient volume shows the substantial of practice and progress for parts of 1913-14. The latest date of foot notes is August, 1914. Thus the near past of periodic medicine which has value is made most available.

Older uses, newer evidences, and dangers of mercury; limited field of action of hexamethylene tetramin; Emetin the latest use; wide field of use of sodium salts—the pressor effects of bicarbonate; limits of use of petrolatum in the bowel, its use in arthritis sicca; unusual value of quinine in scarletina and as a preventive; the hot bath in bronchitis and pneumonia of children (which I have long held as valuable); later judgments of radiotherapy in its varied fields. These indices of contents (which would be varied over a wide range by any user of the book) first attract me.

In preventive medicine tuberculosis holds a prominent place. Minnesota has an extended notice in sanatoria proposals and measures. Milk infection with living T. B. is made duly prominent. Among social diseases alcoholism gets no overdue indictments. One could wish that every physical director might read "athletic heart."

Ventilation and climatology one finds more lucidly given than these have usually been.

I find but one error in print—"incompetency" is made "in competency."

This intensive culture of the medical earth is profitable and pleasurable.

—HAGGARD.

## NEWS ITEMS

A hospital has been proposed for Spring Grove.

Dr. F. A. Engstrom has left Cannon Falls to locate in Hills.

Dr. I. H. Kiesling, formerly of Rockford, has located at Hibbing.

Dr. Geo. H. Shrodes, of Waterville, has moved to Porterville, Cal.

Dr. C. S. Langley has returned to Lake Andes, S. D., from Gayville, S. D.

Dr. R. M. Gunderson, of Lake Park, is taking postgraduate work in Chicago.

Dr. D. H. Bell has returned to Kenmare, N. D., after spending several years in Europe.

Dr. J. D. Budd, of Two Harbors, has sold his interest in the Budd Hospital and moved to Duluth.

The capacity of the McIntyre hospital, at Virginia, has just been doubled by the addition of an annex.

Dr. J. W. Bowen has returned to Dickinson, N. D., and become associated with Dr. Justus Ohage, Jr.

Dr. A. M. Call, of Rugby, N. D., has been appointed vice president of the North Dakota State Board of Health.

Dr. F. M. Blezek has recently returned to Tabor, S. D., having spent eight months in postgraduate work in New York City.

Dr. S. Rainville has returned to Kenmare, N. D., from New York, where he has completed a postgraduate course in surgery.

A plan is on foot by physicians of Minneapolis to erect a 12-story building in that city for the exclusive use of physicians and dentists.

Dr. A. C. Ingerson has resigned as surgeon of the St. Paul police department that he may devote his entire time to private practice.

Dr. H. O. Collins, superintendent of Minneapolis city hospitals, is making a plea for the erection of a nurses' home at Hopewell Hospital.

Drs. C. W. Woodruff and R. W. Huffman, of Chatfield, have dissolved partnership and Dr.

Huffman has entered into partnership with Dr. F. J. Halloran.

The St. Louis County Medical Society (Minnesota) has gone on record as desiring the employment of a physician who will give his entire time to the duties of health commissioner of that county.

At the last regular meeting for the year of the Auxiliary of the Hennepin County Medical Society, Mrs. A. N. Bessesen was elected president and Mrs. W. J. Marclay vice president, for the coming year.

Dr. Charles H. Mayo, of Rochester, has been chosen a member of the advisory committee, made up of famous American physicians, to give advice relative to ways and means to check the spread of typhus in Serbia.

A bill has been introduced into the Senate of the Minnesota State Legislature which will, if it becomes a law, compel physicians to write their prescriptions in English. It has been referred to the Committee on Public Health.

Dr. Laura A. Linton, for fifteen years a member of the staff of the Rochester State Hospital, and second assistant superintendent, died April 1st. She was in charge of the women's wards at the hospital and was also one of the heads of the state training school for nurses.

The Commercial Club of St. Paul has organized a Charity Committee, the purpose of which is to co-operate with all the charities in the city and to work for any civic project which seems desirable. The first work of this committee is to be in behalf of the county sanatoria appropriation, and the work is to be commenced at once in the legislature and out through the State.

The annual meeting of the American Surgical Association will be held at Rochester, Minn., June 9, 10, and 11. About one hundred and fifty members are expected to attend. After the meeting a special train will convey the members, their families, and friends from Rochester to San Francisco for the meeting of the American Medical Association, which is to be held there June 22, 23, 24, and 25.

Because of a shortage of funds for 1915 the Hennepin County Commissioners have had to obtain permission to send the county patients to the Sanatorium for Consumptives at Walker, with the privilege of paying for their care next year. There are forty patients from Hennepin

county at Walker at this time, and if credit had not been extended they would have been sent back to the county as public charges.

The American Society for the Control of Cancer has undertaken to conduct a national campaign of education in co-operation with medical societies, women's clubs, and other organizations. The Minnesota State Board of Health has appointed a special cancer committee, with Dr. Warren A. Dennis, of St. Paul, as its chairman, and intends to co-operate with the national society in every way. Further notice of this work is to be found elsewhere in this issue.

Are you an H. S. M.? Cards conveying honorary sustaining membership in the Minnesota Public Health Association are going out to 265 local campaign managers of the Red Cross Christmas Seals, and to their adult assistants. This is in appreciation of their voluntary services to public health, and especially to anti-tuberculosis work during the Red Cross Christmas Seal campaign of 1914, and gives to them a prominent place in what is without question the largest voluntary educational movement in Minnesota on public health lines. County Public Health Associations will now be formed in each county and the honorary sustaining members will take active part in these. Minnesota has earned much praise from other less favored states because of its public health advances, much of which is due to the widespread interest and intelligent appreciation of public health throughout the whole State, evinced by these ladies.

Direct public health service to 500,000 people, with consequent indirect protection of the remaining 1,500,000, is the record of the Minnesota State Board of Health for 1914, as presented to the legislature at recent hearings. The cost of these services was about three cents per head of the total state population, or about twelve cents per head of that one-fourth of the population directly benefited. Over 287,000 Minnesotans received direct services from the laboratory analysis alone. Over 17,000 received one or more examinations of the throat for diphtheria, blood for typhoid, or sputum for tuberculosis. The remaining 270,000 participated directly in the result of 198 investigations of water supplies, made in 156 localities, involving 1,500 water analyses and 31,000 miles of travel. At least an equal number received direct pro-

tection through the work done in stamping out epidemics of scarlet fever, typhoid fever, etc., in the 294 localities visited for this purpose. Examinations of this character were made of over 5,000 individuals. For tuberculosis alone the investigations totalled 705 persons resident in 85 sanitary districts of 35 counties. In addition to all these about 70,000 records of births and deaths are handled annually.

#### POSITION WANTED

A young lady with experience as doctor's assistant wishes position in a physician's office. Good references. Address 215, care of this office.

#### LOCUM TENENS WANTED

Would like a physician to take charge of my practice for a month or six weeks beginning May 1 while I am East taking post-graduate work. R. J. Church, M. D., Park River, N. D.

#### POSITION AS LOCUM TENENS WANTED

For four weeks during the month of June or July. Prefer a town with little or no competition. Am 30 years of age; can give best of reference; have had hospital training. Address 212, care of this office.

#### EQUIPMENT FOR SALE

Full equipment of eye, ear, nose and throat instruments, trial case, Pynchon cabinet (golden oak finish), specialist chair, stool with receptacle, etc. Property of late Dr. C. B. Powell, Bemidji, Minn. Address Mrs. C. B. Powell, Bemidji, Minn.

#### PRACTICE FOR SALE

Located in eastern North Dakota, in a good modern town, good farming country surrounding. Practice pays \$3,600 a year. No real estate. Price reasonable. Address 210, care of this office.

#### SURGICAL PRACTICE WANTED

I wish to buy a well established practice in a town of not less than 3,000 population. Would prefer one in which there is a hospital. Might consider the purchase of a hospital also. Can pay cash if desired. Give all details as to practice, surrounding territory, etc., in first letter. Address 214, care of this office.

#### ASSISTANT SUPERINTENDENT WANTED FOR A LARGE GENERAL HOSPITAL

To a graduate of medicine, wishing to secure a thorough training in institutional work, this is an exceptional opportunity. To avoid unnecessary correspondence, answer in own handwriting, giving age, college, experience, whether married or single, and other necessary particulars. Correspondence confidential if requested. Address 208, care of this office.



REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	0															
Albert Lea	4,500	6,192	4													1		1
Alexandria	2,681	3,001	6			1											1	1
Anoka	3,769	3,972	4															
Austin	5,474	6,960	8			1												
Barnesville	1,326	1,353	0															
Bemidji	2,183	5,099	8	3		1											3	
Benson	1,525	1,677	3			1											1	
Blue Earth	2,900	2,319	3															
Brainerd	7,524	8,526	17	2		3											3	
Breckenridge	1,282	1,840	3															1
Canby	1,100	1,528	3												1			
Cannon Falls	1,239	1,385	3															
Chaska	2,165	2,050	4	2														
Chatfield	1,426	1,226	3			1												
Cloquet	3,074	7,031	3															
Crookston	5,359	7,559	6			1											1	
Dawson	962	1,318	1			1												
Detroit	2,060	2,807	6			2												
Duluth	52,968	78,466	72	6	5	7	2								1	4	5	1
East Grand Forks	2,077	2,533	4															5
Ely	3,572	3,572	7															1
Eveleth	2,752	7,036	4			1										1		
Fairmont	3,440	2,958	4			1											1	
Faribault	7,868	9,001	10	1		1												
Fergus Falls	6,072	6,887	6			2	1									1	2	
Glencoe	1,788	1,788	*															
Glenwood	1,116	2,161	0															
Granite Falls	1,454	1,454	5	1		1												
Hastings	3,811	3,983	5															1
Hutchinson	2,495	2,368	2														1	
International Falls		1,487	7			2										3		
Jordan	1,270	1,151	1				1											
Lake City	3,142	3,142	4														1	1
Le Sueur	1,937	1,755	1			1												
Little Falls	5,774	6,078	3															
Luverne	2,223	2,540	1														1	
Madison	1,336	1,811	2															
Mankato	10,559	10,365	3	1	1	4											4	
Marshall	2,088	2,152	3														1	
Melrose	2,591	2,591	1															
Minneapolis	202,718	301,408	337	40	5	41	8				1				1	6	28	3
Montevideo	2,146	3,056	7	1		2												20
Montgomery	979	1,267	4			1												1
Moorhead	3,730	4,840	3	1														
Morris	1,934	1,685	0															
New Prague	1,228	1,551	1															
New Ulm	5,403	5,643	10		1	1												
Northfield	3,210	3,215	4	1													1	
Ortonville	1,247	1,774	0															
Owatonna	5,561	5,653	4			1												
Pipestone	2,536	2,475	0															
Red Lake Falls	1,666	1,666	0															
Red Wing	7,525	9,048	8	2			1										1	
Redwood Falls	1,661	1,666	4														1	
Renville	1,075	1,182	1														1	
Rochester	6,843	7,844	36			2												7
Rushford	1,100	1,011	0															
St. Charles	1,304	1,159	1			1												
St. Cloud	8,663	10,600	15	1		1												1
St. James	2,102	2,102	5							1							1	1
St. Paul	163,632	214,744	213	19	6	32	3	5										
St. Peter	4,302	4,176	3			1					1			2	10	11	1	13
Sauk Centre	2,154	2,154	1	1														
Shakopee	2,046	2,302	5					1										1
Sleepy Eye	2,046	2,247	4			1												
South St. Paul	2,322	4,510	4			2											1	
Staples	1,504	2,558	4			1												1
Stillwater	12,318	10,198	14			1										1	1	
Thief River Falls	1,819	3,174	4				1								1		1	1
Tower	1,111	1,111	1			1												
Tracy	1,911	1,826	1															
Two Harbors	3,278	4,990	5			1	1											
Virginia	2,962	10,473	10			2												1
Wabasha	2,622	2,622	3															
Warren	1,276	1,613	3		1													
Waseca	3,103	3,054	2														1	
Waterville	1,260	1,273	3			1												
West St. Paul	1,830	2,660	1															
Willmar	3,409	4,135	3		1	1												
Winona	19,714	18,583	23			3	2											3
Winthrop	813	1,043	1		1													
Worthington	2,386	2,385	0															

## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	1															
Aitkin	1,719	1,633	3	1														
Akeley			0															
Appleton	1,184	1,221	2			1												
Belle Plaine	1,121	1,204	3															
Biwabik		1,695	1												1			
Bovey		1,377	0															
Browns Valley	721	1,058	2															1
Buffalo	1,040	1,227	1														1	
Caledonia	1,175	1,372	1															
Cass Lake	546	2,011	1			1												
Chisholm		7,684	5	1	1													
Coleraine		1,613	0															
Delano	967	1,031	2															
Farmington	733	1,024	0															
Fosston	864	1,055	1									1						
Frazee	1,000	1,645	0															
Grand Rapids	1,428	2,239	2			1					1							
Hibbing	2,481	8,832	8			2												
Jackson	1,756	1,907	2														1	
Janesville	1,254	1,173	1															
Kenyon	1,202	1,237	3															1
Lake Crystal	1,215	1,038	5															
Litchfield	2,280	2,333	5														1	1
Long Prairie	1,385	1,250	0															
Madelia	1,272	1,273	1															1
Milaca	1,204	1,102	3															
Mountain Lake	959	1,081	0															
Nashwauk		2,080	2															
North Mankato	939	1,279	1															1
North St. Paul	1,110	1,404	0															
Osakis	917	1,013	3		1												1	
Park Rapids	1,313	1,850	0		1													
Pelican Rapids	1,033	1,019	1															
Perham	1,182	1,376	2															
Pine City	993	1,258	1															
Plainview	1,038	1,175	3														1	
Preston	1,278	1,193	2															
Princeton	1,319	1,555	6	1														
St. Louis Park	1,325	1,743	1								1							
Sandstone	1,189	1,818	0															
Sauk Rapids	1,391	1,745	3		1												1	
South Stillwater	1,422	1,343	1			1												
Springfield	1,511	1,482	1															
Spring Valley	1,770	1,817	3														1	
Wadena	1,520	1,820	1															
Wells	2,017	1,755	1			1												
West Minneapolis	2,250	3,022	4	1				1										
Wheaton	1,132	1,300	1															
White Bear Lake	1,288	1,505	0															
Windom	1,944	1,749	2															
Winnabago City	1,816	2,555	1															
Zumbrota	1,119	1,138	0															
STATE INSTITUTIONS																		
Anoka, Asylum			2														1	
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			9	1	2													
Fergus Falls, Hospital for Insane			12	8		1												
Hastings, Asylum			3	1														
Minneapolis, Soldiers' Home			9															
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			10															
Sauk Centre, Home School for Girls			0															
St. Peter Hospital for Insane			9	3	1												1	
St. Cloud, State Reformatory			0															
Stillwater, State Prison			0															
OTHER PARTS OF STATE			823	54	7	123	6	13	3		6	2		3	34	60	4	33
Total for state			1962	153	34	260	23	20	3	1	11	2	0	10	67	150	13	80

\*No report received. Registrar not doing his duty.

151 stillbirths not included in above totals.

# For Mother and Child

After prolonged lactation a mother's milk usually decreases in quantity and nourishment. It is then that a properly prepared liquid extract of malt and hops would not only increase the volume of breast milk but the amount of its fat content. But to accomplish this, it must be a **real** extract of malt and hops and not a cheap imitation.



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is the recognized standard of medicinal malt preparations and is prescribed by eminent physicians for the mother and child at the nursing period. It is made of the choicest barley-malt and Saazer hops and contains all the soluble substances of these two materials.

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## PUBLISHER'S DEPARTMENT

### CHAS. H. CIRKLER

We do not suppose there is a physician in the city of Minneapolis who has not purchased surgical instruments, office supplies, or had his prescription properly prepared at Cirkler's, who has been established in business in this city since 1884. His stock is always large and complete and special care and promptness are always given to the filling of orders from physicians.

### CHICAGO SURGICAL RESEARCH LABORATORY

Announcement has just been made of the opening of a laboratory for surgical research in Chicago, bearing the above name and located at 327 South La Salle street. In connection with the original research work on the part of the regular staff private and class instruction will be given to surgeons desiring to perfect their technique. Dr. Axel Werelne is the chief surgeon.

### RIVERSIDE SANITARIUM

Wisconsin has always maintained an enviable reputation among the medical profession in having so many ideal locations, as regards health condition, for institutions devoted to mental and nervous cases. The Riverside Sanitarium, under the direct charge of Dr. Frank C. Studley, is located in a suburb of Milwaukee. All of the buildings are very commodious and modern, being perfectly equipped, and the grounds are beautiful.

### FIRST AND SECURITY NATIONAL BANK

These two banks have consolidated under the above name, with a capital of \$5,000,000, a surplus of more than \$5,000,000, and deposits a trifle over the \$50,000,000 mark.

Mr. F. A. Chamberlain, for many years president of the Security National bank, will be the president of the new institution, while Mr. F. M. Prince, former president of the First National bank, will be chairman of the Board of Directors. This is now the largest bank in the Northwest.

### SCHERING & GLATZ

At this time of the year unwise exposures to the deceptive elements in premature anticipation of settled mild weather bring a harvest of "colds" and their consequences. Remember that, theoretical arguments notwithstanding, early and persistent administration of fifteen-grain Urotropin doses are useful in aborting these conditions in their incipency and in limiting their development.

And if the "cold" has already gained ground and sore throat, pains in the chest and limbs, or the other well known symptoms of an influenzal condition, have made their appearance, you will find Atophan, with its systemic antiphlogistic and analgesic action, an excellent internal adjuvant. It subdues pain and

inflammation more promptly and satisfactorily than the salicylates, besides being non-constipating and causing only very mild diaphoresis in spite of its marked antipyretic effect.

### KENILWORTH SANITARIUM

Any physician who places patients in the above sanitarium can rest assured that they will receive every care and attention. Dr. Sanger Brown, who is so well known in all sections of the Northwest, is in charge. He would be very glad to give any detailed information that would be of help to a physician who is needing the service of such an institution. The plans of the buildings, the arrangement of rooms, and the appointments in every particular are unexcelled. The very latest diagnostic and therapeutic methods have been adopted and the best equipment secured.

### NO SHORTAGE AT ABBOTT'S

Emetine hydrochloride, from being an almost unknown and little used drug, has become one of the most popular. Recent discoveries as to its unquestionable therapeutic values in amebic dysentery, hemoptysis and other hemorrhages, as well as in pyorrhea, have caused an enormous demand for this remarkable remedy, so that it is not to be wondered at that manufacturers are reporting a shortage.

The Abbott Alkaloidal Company is prepared to fill all orders for this alkaloid, which they supply in hypodermic tablets, in ampule form for hypodermic use, in tablets for oral administration, and in a standard antiseptic solution (Boremetine) for use by dentists and physicians in the local treatment of pyorrhea and other affections as above.

If you want emetine, if you want it in a hurry, if you want it right and when you need it, ask for Abbott's, of the trade, or order direct. Complete literature sent free on request to the Abbott Alkaloidal Company, Chicago.

### MODERN X-RAY EQUIPMENT AT ASBURY HOSPITAL

A complete and up-to-date x-ray equipment has recently been installed in Asbury Hospital, Minneapolis, and is in charge of Dr. Douglas Ford Robbins.

The outfit consists, in part, of a Snook Ten Kilowatt Transformer X-Ray Machine, Scheidel Western Röntgenoscope, Trochoscope, Radio-Stereoscopic Table, Wappler Time Switch, Snook Hydrogen X-Ray Tubes, Wheatstone Stereoscope, and an elaborate system of overhead wires and ceiling switch for carrying the high tension current to all parts of the x-ray room.

A Kelley-Koett Footswitch is used for controlling the x-ray tube for fluoroscopic work and also a special blue light placed on the ceiling.

The manipulation of the machine, which is placed in an adjoining room, and of all the accessories is done from the operator's position behind a large lead protection screen.

The entire equipment was furnished by Noyes Bros. & Cutler, St. Paul, and was installed by their experts.

## QUAKER OATS AS RELATED TO GOOD HEALTH

That the doctors of the land shall look a little beneath the surface of Quaker Oats advertising as it has ordinarily appeared, is the purpose of the manufacturers, who have recently increased their use of medical journals in order to tell the physicians the facts about Puffed Grains and Quaker Oats that the general public does not always appreciate.

The company's advertising is emphasizing the importance of its products as health foods. Quaker Oats are shown to possess, in addition to the ordinary nutritive value of oats, a special excellence due to care in picking out only big, plump grains. The rolling process then partly prepares the oats for easy digestion.

The Puffed grains—Puffed Rice, Puffed Wheat and Corn Puffs—have three qualities which will recommend them to physicians in prescribing diets for delicate stomachs. They are made of whole grains with none of the vitamins removed, they are cooked and toasted through and through by the peculiar exploding process and rendered easily digestible at the same time, and finally they have a taste that will tempt even the most reluctant appetite.

## THE TREATMENT OF INACCESSIBLE

liable agent in persistent hemorrhage that is inaccessible to the ordinary modes of treatment. In Coagulose we have a product that meets this want—meets it better,

it is believed, than any agent hitherto employed for the control of hemorrhage due to defective coagulation of the blood. Coagulose is prepared in the biological laboratories of Parke, Davis & Co., from normal horse serum. It is a sterile, anhydrous powder, obtained by precipitation. It contains the fibrin ferment necessary for clotting the blood and is soluble in cold water. It is administered hypodermically (subcutaneously).

Coagulose is indicated in all cases of hemorrhage due to defective clotting of the blood, as in purpura, hemorrhage of the new-born, nasal hemorrhage, hemorrhage from gastric or duodenal ulcer, pulmonary hemorrhage, hemorrhage during and after prostatectomy, hemorrhage from the kidney pelvis, hemorrhage from the bladder, uterine hemorrhage, and hemorrhage after turbinectomies and tonsillectomies. It is also useful as a local styptic to bleeding surfaces. For this purpose the powder may be applied on a tampon or on sterile gauze or cotton. Coagulose is supplied in 15-Cc. glass bulbs, each containing 0.65 gramme of the powder, equivalent to ten cubic centimeters of blood serum. A solution is made by the addition of six to eight cubic centimeters of sterile water.

Physicians are advised to write Messrs. Parke, Davis & Co., Detroit, Michigan, for their brochure on Coagulose, which contains the original article of Drs. Clowes and Busch, of Buffalo, who perfected the product, together with other valuable scientific research matter pertaining to the serum treatment of hemorrhages and blood dyscrasias.

*Daily users of Vaccines use Sherman's*

# SHERMAN'S BACTERINS

Preparations with a Record for  
**RELIABILITY**

**Rheumatism** is a germ disease. Why not use the most logical treatment,

## Bacterial Vaccines?

In acute cases Sherman's No. 6 has proved very successful.

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Write for Literature

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For  
**AMENORRHEA  
DYSMENORRHEA  
MENORRHAGIA  
METRORRHAGIA  
ETC.**

ERGOAPIOL (Smith) is supplied only in packages containing twenty capsules.

DOSE: One to two capsules three or four times a day.

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MARTIN H. SMITH COMPANY, New York, N.Y., U.S.A.

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## CLINICAL AND RADIOLOGIC FINDINGS IN PULMONARY TUBERCULOSIS: THE VALUE OF A CO-OPERATIVE DIAGNOSIS\*

BY H. Z. GIFFIN, M. D., AND W. D. SHELDON, M. D.

Mayo Clinic  
ROCHESTER, MINNESOTA

Scientific investigation demonstrates that tuberculosis is well-nigh universal in modern life. Our presence here today is sufficient evidence that Nature has endowed us with an admirable system of defense. The prevalence of tuberculosis results partly from our ignorance and partly from our inability to apply the knowledge that we possess, while the failure of the natural defenses in many instances is due to causes over which the medical profession has little control and to which it has given little attention.

From the earliest time the consumptive has been recognized by his associates, but it has been only since Laennec and Auenbrugger that methods of diagnosis have become known which develop the local signs of disease. "Early tuberculosis" has always been a relative and *progressive* term. The failure to recognize early tuberculosis rests, primarily, with the patient; but the medical profession must bear a large measure of this responsibility because of negligence, defects in our methods of education, and the many obstacles met with in private practice. Thus far the duties of the medical profession have been to determine the presence of the disease in those who solicit an opinion, though in the army and navy and in some other organizations a satisfactory state of health is a requirement. The indifferent, the thoughtless, and the ignorant

may come to recognition late, and consequently spread the infection for years.

The rapid growth of specialism within recent years furnishes abundant evidence that none of us is able single-handed to make a practical application of scientific medicine. With specialism arises also the necessity for co-operation, which, it is true, as yet is attained with considerable difficulty and expense. Even in the hands of the most skillful, the diagnosis of pulmonary tuberculosis has dangerous limitations. Cases with obscure signs leave both patient and physician in a state of anxious perplexity. The specialist and the internist are therefore the first to appreciate any assistance that can be rendered by laboratory methods, and are especially interested at the present time in a determination of the relative value of the Röntgen-ray in the diagnosis of pulmonary tuberculosis.

Eisler<sup>1</sup>, Sluka<sup>2</sup>, and Rach<sup>3</sup> have published exhaustive discussions concerning tuberculosis in children. The x-ray has been the means by which the time of onset, the location, the extension, in a word, the entire course following a primary infection of tuberculosis in children has been studied. Owen and Morton<sup>4</sup> have presented contributions from the clinical standpoint, while Jordan<sup>5</sup>, Dunham<sup>6</sup>, Moore<sup>7</sup>, and others have discussed the technical and laboratory phases of the work.

A consideration of the subject classifies itself

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under two headings: (1) the value to the clinician of a positive x-ray diagnosis, and (2) the value of a negative diagnosis.

#### THE VALUE TO THE CLINICIAN OF A POSITIVE DIAGNOSIS BY THE RÖNTGENOLOGIST

The relative value of the study of stereoscopic plates of the chest as an aid in the diagnosis of pulmonary tuberculosis, will naturally vary with many factors. The skill with which the Röntgen plates are made, the conservatism and the experience of their interpreter, on the one hand; and the skill of the internist, the degree of care in searching for physical signs, and the length of time during which a patient may be under observation, on the other, will cause a great variation in the esteem for röntgenology in different clinics.

We can, however, in a discussion of this character depart from common ground. While a highly presumptive diagnosis of pulmonary tuberculosis may be based upon definite signs alone, nevertheless the only absolute proof of a positive diagnosis is the finding of the tubercle bacillus in the sputum. In a series of 373 patients with tuberculosis of the lungs, observed between July, 1913, and June, 1914, 194 showed positive sputum. Of the 194, 177 were radiographed. In these 177 cases with positive sputum that were radiographed, an *independent* x-ray diagnosis was given. This diagnosis was based on a study of stereoscopic plates. In every instance save one the x-ray diagnosis was positive for tuberculosis. We can therefore assert with some degree of finality that practically every case of pulmonary tuberculosis in which tubercle bacilli are found in the sputum will show positive findings on a proper radiographic study.

Recent cases have been used in this study, in order that we might avail ourselves of the increased experience and skill of the röntgenologist, and the keener interest and more careful work on the part of the clinician which has naturally resulted from the several previous years of attention.

Of the 373 cases, there were 142 positive x-ray diagnoses in which the sputum, if any, was negative. In these instances the diagnosis by clinician methods is of course not conclusive because of the fact that healed tuberculosis and early tuberculosis and lesions centrally located may give no signs, while diffuse and miliary tuberculosis may produce very indefinite findings. A review of the histories, however, almost always corroborated the Röntgen findings.

The one case mentioned above in which the sputum contained tubercle bacilli and in which the x-ray findings were negative, is worthy of discussion. This patient was a girl, aged 24 years, who gave a three-year history of complaint. Long periods had been spent in bed, cough and fever had been present at times. She had raised several mouthfuls of blood. For three years the pulse-rate had been rapid, the rate frequently reaching 120. An enlargement of the thyroid had been noticed for two years, together with weakness, nervousness, tremor, and dyspnea. Tubercle bacilli had formerly been found in the sputum. Recently there had been a gradual gain in weight up to 195 pounds. Absolutely no signs were noted on examination of the chest, while the x-ray plates showed only bronchial thickening. It may be possible that this case was not one of pulmonary tuberculosis, but rather of hilus tuberculosis. The possibility of a tuberculosis bronchitis must also be considered.

It was formerly believed and stated that radiography would never reveal a lesion that could not be found by the internist, provided a reasonably thorough and prolonged observation of the patient were made. This, we believe, has been disproved. We have studied our cases with respect to the physical signs, the clinical history, and the probability of a diagnosis without the x-ray findings, each of these on a basis of 4,—4 representing a diagnosis made positive by the finding of the tubercle bacillus. Of 154 cases in which tubercle bacilli were not found, there were 30 in which the probability of a diagnosis upon clinical findings alone was extremely small (degree 1), and 20 in which a diagnosis seemed entirely impossible. This latter group of 20 in which a diagnosis was impossible included early cases, healed cases, and diffuse tuberculosis.

Another question naturally arises: Will the röntgenologist make a diagnosis in early lesions? It must be emphasized that the diagnosis depends on the interpretation of the plate. The röntgenologist, not the x-ray, makes a diagnosis. Moreover, as has already been noted, an "early lesion" and an early diagnosis are purely relative terms. It must be determined what constitutes an early diagnosis. Does it depend on the duration of the history or on the extent of the lesion? Doubtless "early," as we understand it at present, infers a consideration of both these factors, while the duration of definite symptoms is the more important of the two. There has been a constant inclination, in our attempts at making

an early diagnosis, to fall into the error of ascribing a few signs at the apex of the lung to tuberculosis, especially in the individual who is neurasthenic or debilitated. But these findings are only presumptive evidence of tuberculosis. Apical signs without tuberculosis occur most frequently in children; and occasionally in an adult a localized apical bronchitis is quite apt to occur, especially in association with nasal affections. These patients will naturally improve on fresh air and constitutional treatment, and may be classified falsely as "cured" cases of tuberculosis. The question capable of proof is this, Are there cases showing positive sputum and the signs of an early tuberculosis that are negative upon x-ray examination? One hundred and ninety-four cases of our series gave positive sputum. Of these, 177 were x-rayed and no case that could be classified as an early tuberculosis was found in which the x-ray report was negative. The one patient cited above in which tubercle bacilli were present and the stereoscopic plates were negative, cannot be grouped with the early cases, for the duration of the history was three years. Of the above series, 24 can be regarded as so-called early cases from a consideration of the history and findings.

This conclusion does not infer that a lesion cannot be so early that neither the physical examination nor the Röntgen examination may not fail in a diagnosis, but deals only with the relative value of the x-ray in those early cases in which there is positive sputum. An opinion concerning the value of röntgenology in the diagnosis of those early cases of pulmonary tuberculosis in which the sputum has been negative, must necessarily await a knowledge of the subsequent histories in a large series of cases with negative plates. Certainly, it would seem at the present time that an examination of stereoscopic plates of the lungs by a skillful operator and interpreter, is most trustworthy evidence in the diagnosis of early tuberculosis. It is to be hoped, however, that some day we may make a diagnosis of tuberculosis earlier than is at present possible.

An occasional case suggests a probable diagnosis of tuberculosis when the sputum and x-ray are negative. Two cases of this type are included in the series. In one of these, a girl of 14, there had been cough for six months, but no sputum. Two hemorrhages, however, had occurred in the last two months. The physical signs were so indefinite as to be practically negative. In the other case, a woman of 27, there was a history of pleurisy seven years previously,

and this was followed by cough, sputum, and night-sweats. The patient came to a physician because of gastric symptoms, slight cough, and expectoration. A few fine crackles were heard over both apices, while the breath-sounds were harsh over the left upper lobe. Examination by x-ray, however, was negative.

Possibly the most interesting assistance that has been obtained as one looks back over his experience, consists of the visualization of our suspicions as they are revealed by the radiogram. The development of a keener sense of perception has followed the corroboration of our findings when shown graphically on the plate. Many failures in diagnosis have occurred, and röntgenology has really been a stimulus to physicians to perfect their skill in physical diagnosis that they might not lose their proper place in the scheme for co-operative laboratory and clinical conclusions.

The Röntgen ray in almost every instance shows a more extensive lesion than was suspected by physical examination. It may therefore be of considerable value from a prognostic standpoint. It also frequently shows lesions which, on account of their location, are to all other methods inaccessible.

#### THE VALUE TO THE CLINICIAN OF A NEGATIVE DIAGNOSIS BY THE RÖNTGENOLOGIST

In the routine of general diagnosis, a negative radiologic report of the lungs may be of very great value. Further experience may show that the negative value is equally as great as, if not greater than, that obtained in a positive way. There are certain diseases in which this has been notable in our experience:

*Chronic Bronchitis, Asthma, and Emphysema.*—Stoll<sup>8</sup> has called attention to the fact that tuberculosis in the aged has often been overlooked. Its recognition is made difficult chiefly because of coexistent chronic bronchitis, asthma, or emphysema. One of us (Giffin<sup>9</sup>) has reported cases of tuberculosis which were for years regarded as asthma. These patients had doubtless spread the infection unwittingly. In our series of 373 cases there were 13 in which a history of spasmodic asthma was obtained; and of these 5 showed the presence of bacilli in the sputum. The signs in chronic bronchitis and asthma are frequently so plentiful that they easily mask the evidence of a localized lesion. The value of a negative radiogram may therefore be of very practical help in these cases.

*Anal Fistula.*—Seven instances of anal fistula



in association with pulmonary tuberculosis, are included in this series. The finding of pulmonary tuberculosis generally modifies the line of treatment adopted in these cases.

*Goiter.*—Five patients presented themselves complaining of goiter. Their symptoms simulated, in a more or less imperfect way, those of toxemia. When weakness, nervousness, tremor, or a rapid pulse occurs in association with an enlargement of the thyroid, it is not strange that intoxication should be suspected, and a more complete study be necessary before tuberculosis is recognized as the cause of the patient's condition. In this group of cases a negative plate may be of great diagnostic help.

*Neurasthenia.*—It is only necessary to record the general experience that every method of assistance which it is possible to utilize, is welcome in the diagnosis of neurasthenia, which must often be made by exclusion. In great numbers of these patients tuberculosis is suspected; and among other things a radiogram is necessary to exclude its existence.

*Phobia.*—An occasional patient in whom there exists a true tuberculous phobia presents himself, and we cannot deny the assistance from the psychic effect that can be had by an assurance that every method of examination has shown negative results.

*Meningitis.*—The röntgenologist may assist in the diagnosis of the type of meningitis which is present in a given case. We have been able to recognize meningitis by the assistance of positive findings in the radiogram when the physical signs were otherwise indefinite.

*Sub-infections.*—The so-called sub-infections in which there is an occasional rise of temperature have been very puzzling from the standpoint of diagnosis; and it might be said that the röntgenologist's opinion is essential, in order to assist in excluding active pulmonary tuberculosis. In these cases if evidence of tuberculosis be entirely lacking, we may then without delay proceed in the search, generally a difficult one, for some focus of infection.

*Obscure Symptom-Complexes of the Upper Abdomen.*—In the diagnosis of obscure symptom-complexes of the upper abdomen, pulmonary tuberculosis must necessarily be excluded. Patients with irregular types of indigestion sometimes simulating gastric neurosis and sometimes ulcer, may in reality prove to be tuberculous. When abdominal symptoms simulate tuberculous peritonitis or tuberculous salpingitis, radio-

graphic findings may be important evidence to a conclusion.

*Surgical Conditions.*—In certain surgical conditions, the decision as to the existence of tuberculosis is frequently most important. The extent of the lesion may be a decisive factor in a consideration of the advisability of surgical treatment. Should the lesion in the lung be localized, surgical treatment may in reality be beneficial, as was the case in two patients in this series who were operated on for duodenal ulcer on the basis that improvement in the digestive capacity would increase the patient's defense against the tuberculous process.

#### CONCLUSIONS

This study has been undertaken in order that our experience as to the value of a co-operative clinical and radiologic diagnosis in pulmonary tuberculosis might crystallize itself. The material has been approached by the writers from the physician's standpoint, while the radiologic diagnoses were made by Moore. The conclusions have been based on recent cases, in order that we might avail ourselves of the increased experience and skill of the röntgenologist, and the keener interest of the clinician which naturally resulted from the several previous years of attention.

Our review of 373 cases seems to show:

1. That practically every case of pulmonary tuberculosis with tubercle bacilli in the sputum can be diagnosed independently by the röntgenologist.
2. That in almost all of those cases in which a radiologic diagnosis was positive when the sputum was negative, a review of the histories has corroborated the Röntgen findings.
3. That there is a considerable number of patients in whom a diagnosis seems entirely impossible by clinical methods although the röntgenologist reports positive findings. These include so-called early cases, healed cases, and diffuse tuberculosis.
4. It would seem that a careful study of stereoscopic plates of the chest will show evidences of tuberculosis as early as we can at present be positive of its existence by any other method.
5. That a keener sense of perception is developed through the visualization of lesions, and that röntgenology has been a stimulus to physicians in perfecting their skill in physical diagnosis.
6. That the information obtained from the

negative report of a skillful röntgenologist may be of very great assistance in general medical and surgical diagnosis.

7. Finally, it should be emphasized that trustworthy conclusions can be drawn only by one who has had a considerable experience in the reading of stereoscopic plates. The röntgenologist, not the radiogram, makes the diagnosis.

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#### DISCUSSION

DR. F. S. BISSELL (Minneapolis): There is no subject in the field of x-ray diagnosis which offers such strong allurements, or such rich reward in diagnostic results, as the early diagnosis of pulmonary tuberculosis. I think there is universal agreement now that certain typical departures from the normal do occur in the stereoscopic röntgenograms of all cases of pulmonary tuberculosis. The question which confronts us in the x-ray diagnosis is whether these typical changes also occur in other conditions. That naturally is a very great problem because it is difficult to prove, either positively or negatively.

In a recent paper which I presented on September 12th in Cleveland, Dr. Richards of the University staff and myself reported a series of 219 cases, in 88 of which there were no physical signs with a positive Röntgen diagnosis. These cases, almost without exception, were eventually confirmed by clinical evidence, or the x-ray diagnosis was accepted by the clinician as conclusive.

The problem which seems the most difficult to solve from the standpoint of the röntgenologist is whether there are pathognomonic Röntgen signs of tuberculosis. In the preparation of the paper I addressed a questionnaire to about one hundred and fifty members of the American Röntgen-Ray Society and to several men who were doing a large amount of clinical work in tuberculosis in conjunction with the x-ray, in the hope that the replies might aid me in determining this question. A large number of these replies, which were very complete, held there were pathognomonic signs; but almost without exception their descriptions were such as to lead me to believe they were dealing with more advanced cases. The advanced cases are in a special class by themselves. They offer a different problem,

and are really not a problem for the röntgenologist. The only advantage of the x-ray in the advanced stages is to determine the extent of the disease.

The other thing that constantly confronts us is whether the lesions which we observe, and which seem to be typical of tuberculosis, are active or not. There is where the greatest need of co-operation between the clinician and the röntgenologist enters. There are certain cases undoubtedly where one may say from a study of the Röntgen plates alone that the case is an active one. There are other cases in which he may say with a certain amount of assurance that it is not active; but there is a large class of borderline cases where it is impossible to determine whether the lesion is active or inactive except upon clinical evidence.

The interpretation of these röntgenograms of tuberculous cases in the early stages is a fine problem. It requires judgment and some experience, because the changes are necessarily slight ones. They are not such changes as will strike the eye the moment one glances at the plates. They must be carefully studied, and great importance must be placed upon the minute changes which produce only soft shadows in the röntgenogram, which are of the greatest significance. There is naturally a close resemblance in the appearance of the röntgenograms of tuberculous cases in the early stages and those of certain other conditions, and these offer considerable difficulty. I have come to the conclusion personally in a study of this large number of cases, that syphilitic infection of the lung is not such a rare condition as it has been considered in the past. That, again, is a difficult problem for solution because these cases do not go to the dead-house, and we have no means of confirmation; but I believe we have a syphilitic bronchiolitis, or whatever it may be, without actual gummatous formation, which involves the lung and which is somewhat difficult to distinguish from pulmonary tuberculosis.

Another thing is an infection due to the streptococcus, which has its primary seat in the roots of the teeth or in the sinuses. I believe that in these cases we get a metastatic process in the lung which resembles, in a measure, the changes observed in the Röntgen plate of tuberculous patients. But there is a difference. The nodules we see are more massive, and not so soft as in tuberculous lesions. It is a curious fact that with the earlier cases we feel more positive in diagnosis than in the more advanced cases; and in speaking of the early cases I am referring to those in which there are no physical signs, or the physical signs are temporary or transient, or in which there is no temperature-curve. Of course, we may have tubercle bacilli in the sputum early, and we may have physical signs early; but these cases are the exception. Usually, when we have tubercle bacilli in the sputum, we have more advanced cases than those we are dealing with. These cases present a distinct symptomatology: they present symptoms of a slow intoxication without any characteristic signs of tuberculosis, as we have learned to consider them in the past.

The case Dr. Sheldon spoke of, in which the tubercle bacilli were found in the sputum, and there were no Röntgen signs, brings in the question of the personal equation. Naturally, errors will be made in any case where the personal equation enters. More about these cases should be reported by the röntgenologist, but the



fact that there was bronchial thickening seems to indicate there was a pathologic condition in the lung. It seems to me, the diagnosis "bronchial thickening" is one which should not be made, because it is rather indefinite, and when actual bronchial thickening does occur, it signifies that there is some pathologic basis for it.

DR. E. T. F. RICHARDS (St. Paul): As Dr. Bissell has said, the early cases are the ones which should interest us most in the question of pulmonary tuberculosis, as it is by the recognition of these that we hope to eventually check the disease.

A new conception of early symptomatology, the use of the x-ray, and the application of tuberculin, are all very valuable means to this end. That indefinite train of symptoms hitherto so easily classified under the unsatisfactory term of "neurasthenia" is more and more being shown to depend upon a hidden focus of infection, whether that infection be a diseased tonsil, diseased gums or teeth, latent syphilis, or a tuberculous focus. In the presence of such symptoms as easily induced fatigue, diminished mental and physical efficiency, and vague pains, even without symptoms pointing to the lung itself, I believe it is necessary to rule out some focus of infection, such as that of early tuberculosis of the lung. In order to do this, after a careful physical examination we have the two very valuable aids—the x-ray and the use of tuberculin.

Dr. Sheldon did not refer to the use of tuberculin in his cases, and I should like to ask him his personal opinion of it when he closes the discussion. We have found at the University Hospital clinic that tuberculin given subcutaneously is of very great value in arriving at a definite conclusion as to the presence of an active focus of tuberculosis. Its place, primarily, is that of a corroborative measure, as, at best, it demonstrates only the presence of a lesion, at what site in the body we do not know, and we have to check it up by means of the x-ray or by some definite physical findings. In the series of cases to which Dr. Bissell referred, 88 showed a history of fatigue and indefinite pains dating back many months, and they had been grouped under the term of neurasthenia, psychasthenia, or some such vague classification. In these, after careful physical examinations by several men, we were unable to find any physical signs. Sixty-six of the 88 cases gave positive Röntgen-ray signs; 37 of these were injected with tuberculin subcutaneously, and only 1 failed to react. The explanation of that negative one we do not yet know. Twenty-six of the 88 cases gave no positive Röntgen signs, and none of them reacted to subcutaneous tuberculin.

We have then been constantly checking, side by side in the ward, the use of tuberculin, and a careful detailed history within the x-ray room, the findings of the radiologist. It has particularly shown the necessity of emphasizing the earliest possible diagnosis of the disease, before the stage of physical signs and before the appearance of tubercle bacilli in the sputum. There should be a more careful consideration of early symptomatology, and the more frequent use of the x-ray to determine the cause of vague symptoms suggestive of a low-grade intoxication, always taking into consideration the possibility of an active focus in the lung. Finally, there is great value in the diagnostic use of tuberculin when correctly given and carefully interpreted.

DR. J. P. SEDGWICK (Minneapolis): This subject is so important in general medicine that we are all fortunate in having Dr. Sheldon bring it before us. It is of extreme importance in pediatrics for two or three reasons. In the first place, tuberculosis generally begins in childhood, and if we wish to study early tuberculosis we must usually study it at that period. Usually, tuberculosis in childhood is not of the open type, and we do not get the tubercle bacilli in the sputum; therefore, this means of diagnosis becomes of especial importance. Also, the difficulty of diagnosis by ordinary means is sometimes increased in childhood by restlessness of the child. We are able to take pictures of the chest of a child practically instantaneously, in fractions of a second, by means of the new and powerful machines and the intensifiers. Rehyer said to me personally that he considered the x-ray diagnosis in these conditions as important as the ordinary means of diagnosis. I do not know that I would go that far.

In the early tuberculosis in childhood we have several signs shown by the x-ray alone. Sluka has shown that there is a definite hilum shadow which is early found on the x-ray plate. Peribronchial glands can at times be diagnosed by no other means than the x-ray. There is one form of tuberculosis in childhood which gives a definite finding, and this condition can at times be diagnosed in no other way, and the condition is very important because of its bad prognosis. I am speaking of miliary tuberculosis in childhood. The characteristic mottling will often make it possible to make a definite diagnosis of miliary tuberculosis in infancy and childhood.

I have found röntgenography of great value.

DR. GEORGE D. HEAD (Minneapolis): I would not take up the time of the Association in discussing this question at this late hour were it not for the extreme interest that I have for years had in the subject of the early diagnosis of tuberculosis. As some of you doubtless know, within the last year we have been endeavoring at the University Hospital to work out a clinical picture of what we have been calling "concealed tuberculosis." The clinical picture resembles closely the usual picture which we understand as that exhibited by neurasthenia. We have come—some of us at least—very strongly to the opinion that many of these persons who show all the evidences of nervous exhaustion under strain, physical and mental, and whose symptoms have been diagnosed as enteroptosis, psychasthenia, neurasthenia, and various forms of surgical abdominal diseases which the surgeons have been attempting to remedy, really harbor a concealed active tuberculous lesion. We have been trying to give this picture a definite entity so that it can be recognized clinically.

Not very long after I graduated in medicine and began doing work in the out-patient service of the University, I was struck with the frequency with which we apparently overlooked tuberculosis of the lungs in its early stages. It seems to me, the profession must rely upon more certain methods of detecting this disease early than the old methods of physical examination. Most of the physical signs now relied upon in the diagnosis of tuberculosis are late, not early, manifestations of the infection. The various signs which have been advocated year after year by one man after another,—peculiar signs which the author himself can detect, but which can not be taught to anyone else,—



have fallen by the wayside, and, as time has gone on, have been forgotten. At that time, interested in the work of Trudeau in the use of the tuberculin, I took the matter up, and began some experimental work with tuberculin, and have followed all of these years one single method in its use.

The Bureau tuberculin is to be had from the Bureau of Animal Industry at Washington, which is a ten per cent solution of Koch's Old Tuberculin. I use this tuberculin with a special technic. I have used it, not for one or two years, but for fifteen years, and have now accumulated probably six or seven hundred cases in which this special form of tuberculin has been used in a special way, with a special technic, which, I am sure, modifies the reaction considerably. I find that this special form of tuberculin is harmless in its diagnostic use in detecting tuberculosis.

I am thoroughly convinced that, in order to detect these early lesions, we must have a special test of one kind or another. I am thoroughly convinced that, up to the present time, this special method is the best we have.

I have been extremely interested in the studies which Dr. Bissell has been making at the University, comparing the *x*-ray findings with the physical findings and with the tuberculin test, to determine whether he could establish an *x*-ray technic which could detect tuberculosis of the lungs. I must say I believe he has worked out a technic, but I am not sure whether he will be able to teach it to others. At any rate, he has been able to work out a technic in which he will perhaps be able, in ninety per cent of the cases, to detect evidences of tuberculosis; but the question arises, Is the röntgenologist going to be able to tell us whether the tuberculosis present is an active tuberculosis or a healed lesion? This really is the important question to be settled by the röntgenologist.

DR. C. A. DONALDSON (Minneapolis): I had hoped to see some *x*-ray plates exhibited in connection with this paper. This point I would like to discuss, and incidentally to ask Dr. Sheldon a question.

In the examination of these chest-plates, you have all observed that one set of ribs shows plainly, namely those next to the plate, while the ribs on the other side of the body do not show with any degree of clearness. This is true in all *x*-ray work, the part next to the plate giving us the best detail. Here is the point with reference to the lung tissue: You take a bone-plate and study it stereoscopically, that part next to the plate brings out the best bone detail, while the part that is far away from the plate, say three or four inches, shows very slight detail. It stands to reason that we have the same result when we take an exposure of the lung in one direction only. I understood the doctor to say that their cases were studied stereoscopically. If you place the patient with his back next to the plate, you have the clearest detail in the back portion of the

lung only, unless you have over-exposure. It is necessary to bring out all details of the lung. You should have the stereoscopic plates with the back next to the plate and also with the chest next to the plate. It would be interesting to me, as well as to the rest of you, to know whether, in failure to find lesions on *x*-ray examination, the chest was exposed in both directions or not.

It brings us back to this point, in all of our studies of röntgenology it is a question of technic, not only of the work itself, but of the interpretation, and most of our prominent men have time and again said this: "I had these records on the plates, but did not know it." This combined work of the radiologist and physical diagnostician is most important in the study of lung disease.

DR. SHELDON (closing): In regard to the case in which no positive findings were found on the *x*-ray plate where the tubercle bacilli were present: I desire to say that Dr. Moore went over the plates again carefully. On his opinion we depend, and his diagnosis was not modified by the fact that we found this case in the records. We have no way of filing all the negative cases, and finding them with readiness. It was such an enormous task that I did not undertake it. Dr. Moore gave as his opinion that about one in fifteen cases coming for *x*-ray examination proves to be positive. That gives a fairly comprehensive idea of frequency of positive findings, and the reports we give show how very infrequently positive cases pass undetected.

The fact that I wish to bring out particularly in the work is the fallacy of relying on any single method. There is no one method which will serve our purpose, and the more ways we adopt, the more accurate are our results, and the more we check up the shortcomings of the various methods.

So far as the use of tuberculin is concerned, our facility for the study of these cases is limited, because its use is confined practically to hospital cases. It is an uncertain method to attempt the tuberculin test unless the patient is in bed for several days with accurate temperature control.

The interpretation of the tuberculin test has its difficulties also. We do not know the meaning of a positive tuberculin test with a sufficient degree of accuracy to depend upon it, especially in differential diagnosis. I have found no satisfactory explanation of the meaning of the reaction; but, it seems to me, a positive tuberculin test signifies more often active immunity on part of the patient or an attempt at it, than it does an active lesion in the body. I learned from some cases I have seen, where a positive tuberculin reaction was obtained, that other lesions were the cause of the symptomatology so that, in the differential diagnosis, where the cause of the symptoms is sought, the use of tuberculin leaves us in as bad a position as without it,—that is, we cannot determine by this test whether or not the symptoms are due to tuberculosis.

## PELLAGRA, WITH REPORT OF CASES\*

BY G. S. ADAMS, M. D., AND F. V. WILLHITE, M. D.  
YANKTON, SOUTH DAKOTA

## IN TWO PARTS—PART I

An abundant literature upon the subject of pellagra, during the past few years, together with the many reports of its presence in institutions similar to that with which we are connected, served to direct our attention to this disease. For some time we had suspected its presence among our patients, and had frequently spoken of it in our discussion of cases. It was not, however, until the latter part of the past summer that we were able to make a positive diagnosis, at which time seven patients (five male and two female) presented almost classical pictures of the malady.



Case 1.—Photograph taken September 28, 1913, showing skin lesions on backs of the hands. The erythema has subsided, and the skin appears thickened, scaling, and fissured.

The history of the disease since its first identification by Casal, two hundred years ago, is so interwoven with the destiny of many nations that its advent into this country, to a considerable extent, has occasioned widespread concern. First reported in America about 1863, it received but little attention until after 1906, when the finding of many cases, particularly in the southern states, aroused a new interest in the subject. This was quickly followed by reports of cases in more northern states, recent statistics showing it to be present in 75 per cent of the states of the Union, including our immediate neighbors, Iowa, Minnesota, and Wisconsin.

## DEFINITION

Pellagra may be defined as an endemic epidemic disease, characterized, clinically, by a series of symptoms involving the digestive, cutaneous,

and nervous systems, and usually by a chronic course presenting seasonal recurrences and remissions, usually terminating in dementia, physical exhaustion, and death.

*Symptoms.*—In general, it may be stated that all ages, both male and female, are liable to the disease, from the child of a few months to advanced age, the greatest number of cases occurring between twenty and forty years. Statistics show that about one-third more females than males are attacked.

It is generally believed the disease does not



Case 2.—Photograph taken September 16, 1913, showing a zone of scaling and the symmetrical "glove" appearance of the lesions. The plum-color was especially pronounced in this case.

invade the larger cities, but is confined to those living in rural communities, and more especially those exposed to sunlight abroad, and unsanitary and improper dietetic conditions at home.

Pellagra is usually described as a disease of seasonal recurrences and remissions, though more recent studies have thrown a great doubt about the truth of this statement. However, it is a clinical fact that during the winter months the disease undergoes a more or less marked remission, to recur with the return of spring. April, May, and June being the months in which recurrence is most likely, it runs its course through the summer months, slowly abating as the days grow cooler, passing gradually, or with a final flaring up during September or October, into its winter remission, thus completing the cycle.

Occupation, heredity, social condition, or previous diseases are thought to be of importance

\*Read at the 33d annual meeting of the South Dakota State Medical Association at Watertown, May 27 and 28, 1914.

only as they reduce the individual resistance, thereby increasing the degree of susceptibility.

The cardinal symptoms of the disease are those which pertain to the digestive, cutaneous, and nervous systems; although we shall take up their description in the sequence named, it is not to be inferred that they always occur in this order, neither is their onset always synchronous, although frequently so, and they are certain to occur at some time during the evolution of the disease.

The onset makes its way slowly, characterized by a feeling of lassitude, physical and mental inertia, anorexia, epigastric uneasiness, vertigo, headache, weakness of the lower extremities, occasional diarrhea, and, frequently, a slowly developing depression.



Case 3.—Photograph taken September 16, 1913, after the erythema was in the process of retrogression. The epithelium is scaling, the skin thickened, and the color a dirty-brown.

*Digestive Symptoms.*—Those cases whose first manifestations are digestive disturbances, now develop an intense and uncontrollable diarrhea. The entire gastro-intestinal tract becomes involved. The tongue, at first furred and foul, becomes red and swollen, loses its coat, and becomes denuded of its epithelium, especially along the edges and tip. Irregular fissures form on its middle and along the edges, and the whole tongue has a bald appearance resembling a beet, and variously referred to as the "bald tongue" or "beet tongue" of pellagra. The lips, gums, buccal mucosa, palate, and fauces are swollen and tender, and have a bright cherry-red color. The distinguishing features in this condition are the tendency of the tongue to become denuded of its epithelium, the intense burning sensation in the mouth, and the bright cherry-red or pink color, which differs from the deep-red of ordinary infections.

These patients frequently develop an intense aversion to food, vomiting is occasionally present, gastralgia becomes marked, and there is, almost invariably, an intense burning sensation in the stomach and intestines. It is often difficult to induce these patients to take the proper amount of nourishment, frequently confining themselves to liquids, which they take sparingly. The diarrhea becomes intense, and is strangely persistent. It will respond to no manner of treatment, although it occasionally ceases suddenly for several days, to begin again without any apparent cause. The stools are acid, liquid, or semisolid, pale and slimy, very numerous, contain much gas, and have a foul odor. The odor is said to be characteristic, resembling very much the odor of the vaginal discharge in uterine



Case 4.—Photograph taken September 14, 1913, showing the symmetrical location of the lesions on the backs of the hands and forearms, sharply defined border and glove-like appearance.

carcinoma. In extreme cases mucus, blood, and pus are present.

These symptoms may, after a few weeks' duration, gradually subside. Much more frequently they persist for several months in a more or less marked degree, causing the patient much suffering, and because of the insufficient nourishment and constant diarrhea result in great loss of strength.

*Cutaneous Symptoms.*—The skin lesions sometimes make their advent along with the diarrhea, and sometimes not until after the gastro-intestinal symptoms are well established. Dr. Stewart Roberts, in his book on "Pellagra," states that "in those exposed to sunlight the dermatosis is synchronous with the diarrhea, whereas in those living indoors the diarrhea precedes the dermatosis."

The lesion is usually described as a dermatitis occurring generally on the exposed surfaces, as the hands, forearms, face, forehead, and, occa-



sionally, on the dorsal surfaces of the feet. It is seen most often on the backs of the hands and the lower third of the forearms, and resembles very closely, in its early stage, an ordinary sunburn. The involved area becomes reddened, swollen, and tender; and there is a sharp line of demarcation between the diseased and healthy skin. The lesion is always symmetrical, great stress being laid upon this fact by most authorities as being of the utmost diagnostic importance. As the eruption begins to subside it fades by degrees, and after a few weeks desquamation begins. When the dermatitis has been mild and superficial, desquamation occurs in fine, branny scales, leaving a bright-red denuded surface; and when it has been severe and deep it exfoliates in large scales, leaving a raw, bleeding surface, which heals gradually, leaving a roughened, scaly surface with a dark-red or purplish discoloration. A feature worthy of note is the relatively short duration of the stage of erythema compared with the stage of desquamation, which is prolonged, often lasting for many months. In fact, it is doubtful if the skin ever returns entirely to normal, for while the scaling may disappear as the remission advances the skin usually remains roughened and more or less discolored.

After the dermatitis has subsided and the exfoliation has ceased, one observes an atrophied condition of the skin which seemingly is about in proportion to the severity and duration of the attack. The skin is rough, wrinkled, and sometimes thrown into folds, resembling the changes of senility.

*Nervous Symptoms.*—The nervous symptoms may be many and varied, and while they are sometimes absent entirely, or occur only very late in the disease, they are usually present and manifest themselves all the way from the vague anxious states to the most profound mental deterioration. Many trophoneurotic symptoms are present, as the many pains, burning sensations, tremors, dysphagia, muscular spasms, late contractures, and sudden changes in the pellagrous manifestations will indicate. Insomnia is nearly always present, especially during the recurrences. The reflexes are usually exaggerated. Many paresthesias, as pins and needles, prickling sensations, and formications, are present.

There is no mental picture characteristic of this disease; but perhaps the larger percentage show a disturbance of the depressive type, varying from a mild to a most profound melancholia. Early, there may be irritability, change of dis-

position, vague emotional disturbances, slowly developing delusions; and eventually a well-established mania, melancholia, or other mental disease presents itself, but, whatever the type, they come at last through the descending scale of mental loss to complete dementia, unless, indeed, the somatic disintegration so far precedes as to end the scene.

*Course.*—Pellagra is essentially a chronic disease; but, while some writers describe an acute form with rapid onset, severe pulse and temperature disturbance, profound prostration, and short duration, by far the larger percentage of the cases run a chronic course from five to fifteen, or even twenty, years.

Its course is marked by remissions, usually occurring during the winter season, in which the symptoms so improve that in the early stages of the disease but little vestige of the summer attack remains, yet show as time passes that, with each succeeding attack, the malady has progressed, leaving the patient more and more enfeebled, both physically and mentally. The emaciation advances, and the gradually developing weakness and increasing dementia drive the patient finally to his bed, where, with rough and scaling skin, sore and burning mouth, drooling acrid saliva, wasting diarrhea, deepening melancholia or delirium, he presents a picture of such abject misery that it seems a blessing when the slowly creeping exhaustion brings his suffering to an end.

*Diagnosis.*—The diagnosis in typical cases and at the height of the attack is not difficult. One should bear in mind the ternary character of the cardinal symptoms, gastro-intestinal, dermal, and nervous.

Early in the attack, the suspicious symptoms are diarrhea without apparent cause, tongue red on tip and margin, uneasy sensations and tenderness about the epigastrium, exaggerated reflexes, and insomnia almost always, loss of energy, and long-continued lassitude. Later, as the attack becomes more completely developed, the dermatitis makes its appearance, usually on the hands and forearms, and sometimes on the face and neck or extending to other parts of the body. It is bilaterally symmetrical, sharply demarked from healthy skin, peculiar reddish-brown color, subsiding rather promptly, and followed by an unusually prolonged period of exfoliation or scaling. Repeated attacks leave the hands permanently pigmented and rough.

The sore mouth, bald tongue, persistent diarrhea, peculiar odor of stools, and emaciation,

together with the advent of nervous and mental symptoms, especially of the depressive type, serve to make the diagnosis clear.

The differential diagnosis consists largely in distinguishing this disease from such other conditions as sunburn, eczema, and erythema multiforme. In the first of these the history is different: there are no constitutional symptoms, nor does there follow a prolonged period of scaling.

In eczema the lesion is not essentially bilaterally symmetrical, itching is usually present, and constitutional symptoms, sore mouth, and diarrhoea are absent.

Scaling is usually absent in erythema multiforme, the constitutional symptoms slight, and the lesion presents a bright-red areola.

*Prognosis.*—The prognosis as to time is good. While some acute cases develop rapidly and die within a few months, the greater number of cases become chronic, and may last many years.

The prognosis as to life is bad. Whether rapidly or slowly progressive, the final outcome is the same, which seems to be an exhaustion following some form of intoxication.

*Etiology.*—The discussion of the etiology of this subject, which must of necessity be short in this paper, we have purposely left to the last because of its great importance, and because around it has grown a controversy in which scientific men have indulged since the disease first became known. Yet the fact remains that the cause of pellagra is still unknown.

In the latter half of the 18th century Casal suspected that the disease was due to spoiled maize (*Zea mais*, or Indian corn). Marzari later advanced a theory that it was due to the lack of certain nutritive elements in corn. Two schools soon arose: the Zeists, who believed the disease was in some way due to corn; and the anti-Zeists, who opposed this theory. Discussion continued to revolve around corn as the principal causal factor, until the recent theory advanced by Sambon, that it is an infectious disease due to some protozoal or bacterial parasite which is probably transmitted to man by an insect of some kind, most likely a blood-sucking fly of the genus *simulium*. Continued research, however, has failed thus far to definitely associate the disease with any insect as its carrier.

Early in 1912, what was known as the Thompson-McFadden Commission was created for the purpose of investigating pellagra in the United States. The members of this commission were inclined to incriminate the *stomoxys calcitrans*, or common stable-fly, more than any other. A

summary of their conclusions is to be found in the *Jour. of the A. M. A.*, of January 3, 1913; and, inasmuch as these findings represent the very latest work upon this subject, we take the liberty to quote a summary of their findings:

1. The supposition that the ingestion of good or spoiled maize is the essential cause of pellagra is not supported by our study.

2. Pellagra is in all probability a specific infectious disease communicable from person to person by means at present unknown.

3. We have discovered no evidence incriminating flies of the genus *simulium* in the causation of pellagra, except their universal distribution throughout the area studied. If it is distributed by a blood-sucking insect, *stomoxys calcitrans* would appear to be the most probable carrier.

4. We are inclined to regard intimate association in the household, and the contamination of food with the excretions of pellagrins, as possible modes of distribution of the disease.

5. No specific cause of pellagra has been recognized.

Number 4 of this summary recalls vividly the development of pellagra in one of our patients early last summer. Two patients, one a pellagrin at the height of the attack (Case 1), the other a manic-depressive (Case 4), both very greatly exhausted from their psychosis, were placed on the porch through the day for open-air treatment. They occupied the same porch-swing, and their meals were served them there. They were untidy, soiling themselves constantly. Much drooling of saliva, and the presence of food at meal times, soon served to attract the flies, literally by the hundreds. In their mental state of extreme depression and indifference, and their physical state of exhaustion, they made no effort to protect themselves against the pests, permitting them to crawl about their hands and face, into their food, and from one to the other unmolested. They were covered with mosquito-netting, but this was frequently blown down by the wind or removed by the patients themselves in their restlessness. After about a month, perhaps sooner, the second patient developed an intractable diarrhoea and a sore mouth, which was very promptly followed by a typical, though mild, pellagrous eruption of both hands, corresponding closely to that of the first patient. The condition continued to the development of a typical though much milder attack than had the first patient. We cite this incident because it is of interest in the light of the suggestion that the disease might be transmitted from one to another by the common stable-fly, which was present in abundance.

(To be continued.)

## SOME OF THE RARER FORMS OF JOINT DISEASE\*

By JAMES E. MOORE, M. D.

MINNEAPOLIS

The object of this brief paper is to call attention to certain joint-diseases readily recognized by specialists, but commonly overlooked or incorrectly diagnosed by the average practitioner. They lead to mistakes because of their rarity, but are all easily recognized by one who knows of their existence.

*Caries sicca* is a form of caries which was first minutely described by Volkmann as a definite pathologic variety of tubercular joint-disease. The most characteristic features of this disease are absence of suppuration, obliteration of the joint-cavity, and sclerosis and concentric atrophy of the articular extremity of the bone. This disease occurs, in the vast majority of cases, in the shoulder-joint, but König states that it does occur in the knee with the same symptoms and pathology as are found in the shoulder. Most writers say that it occurs in children and young adults. The writer's cases have all been in adults, and in the shoulder-joint. The disease begins with multiple foci in the head of the bone; and the head of the bone may be so extensively destroyed as to cause flattening of the shoulder without wholly destroying the cartilage. "The usual spongy granulations so characteristic of tuberculosis are absent, and, instead, is found a dense, slightly vascular tubercular tissue, which causes erosion of the bone and usually of the cartilage, which leads to irregular losses of substance. This tissue develops later in the synovial membrane, grows inward between the joint surfaces, and leads to obliteration of the joint cavity. The peculiarity of this new tissue is its great tendency to shrink and form firm fibrous tissue." There is also a tendency to a concentric atrophy of the bone, so that the shaft may be considerably smaller than its fellow.

Although the clinical history and pathology of this disease are very different from those of the ordinary tubercular joint, there is no doubt of its tubercular character, as the tubercle bacillus can easily be demonstrated.

This disease develops, as a rule, without apparent cause in persons otherwise in good health. The first symptoms are usually pain and restricted motion, which are almost invariably pronounced rheumatism. The pain may become severe, and extend down the arm. Instead of the usual swelling of joint-tuberculosis there is gradually

increasing atrophy, so that the acromion becomes prominent. The stiffness increases; and motion causes pain, and may cause a crackling sensation. There is no general temperature, and the local temperature is not nearly so marked as in ordinary tuberculosis. Abscess very rarely occurs.

The diagnosis is very simple. The atrophy differs from that of paralysis in being accompanied by stiffness and pain in the joint. It should not be mistaken for rheumatism, because rheumatism is a polyarticular disease. The progress is very slow; and the stiffness of the joint may be overlooked for a time because of the mobility of the scapula. As a rule, when the patient first comes to the doctor there is marked restriction of motion.

The prognosis is good for a tubercular condition, as it usually ends in about two years with complete ankylosis of the joint. A certain small percentage of cases end in general tuberculosis. The ankylosis is largely compensated for by the mobility of the scapula; and the arm is quite useful.

The treatment should be complete rest, which can usually be secured by carrying the arm in a sling. When there is an exceptional amount of pain a plaster-of-Paris dressing should be applied, extending from the elbow well over the scapula. Excision of the head of the humerus has been recommended, with the hope of reducing the danger of general tuberculosis, and to substitute a flail-joint for a stiff one; but there is no evidence to show that the operation reduces the danger, and a stiff shoulder is stronger and fully as useful as a flail-joint.

One naturally asks the question why tuberculosis should assume such peculiar form in certain cases as *caries sicca*; and it has been suggested that possibly the difference was due to some peculiarity in the individual, but that theory is disproven by the illustrations I show you here of a man who came to the University Hospital with a well-marked *caries sicca* in the left shoulder, and one year later returns with a well-marked tuberculosis of the ordinary type in the other shoulder. Why this man should develop *caries sicca* one year, and the ordinary type of tuberculosis the following year, is beyond my comprehension.

*Hydrops articuli*, or hydrarthrosis, is the next

\*Read before the Minnesota Academy of Medicine, November, 1914.



disease I wish to call to your attention. It is rare, and seldom occurs in any joint but the knee. As a rule, it is a simple, subacute inflammation from the beginning, although it does occur following an acute attack. It may be limited to one knee, but very commonly involves both. The disease is characterized by gradual, painless distention of the joint, so that fluctuation is readily obtained. The appearance is quite char-



acteristic, giving the knee a fusiform shape, instead of the characteristic protruding form of a tubercular knee. The effusion may be thin and watery, or it may be thick and gelatinous. Secondary changes, as a rule, are very slight. There is a gradual thickening of the synovial membrane; and the effusion may become so great as to stretch the ligaments, and weaken the joint. It very commonly comes on without apparent cause, but is usually attributed to injury, rheumatism, gonorrhea, and loose bodies in the joint. Active inflammatory symptoms are wanting. The swelling usually becomes quite marked; and there is apt to be ligamentous crepitus.

The writer has classified this disease as mildly

tubercular, because it is known sometimes to be tubercular in character, and it is impossible to tell at the beginning whether it is tubercular or not. Senn said: "Painless, rapid-forming non-articular hydrops is always a suspicious affection; and if the case prove rebellious to ordinary treatment, suspicion of its tubercular nature should always be entertained, and this suspicion always becomes well-grounded if, after the hydrops has disappeared spontaneously or under appropriate treatment, the joint remains swollen, and presents other indications of the tubercular character of the inflammatory product."

The diagnosis of hydrops articuli is easily made, because it differs from acute effusions in having no inflammatory symptoms, and from the usual tubercular synovitis by the fact that in the characteristic tubercular joint the enlargement is due almost exclusively to the thickening of the serous membrane with very little effusion.

The prognosis in the majority of cases is good, because under proper treatment the effusion will disappear in a few weeks or months, and a joint retain its function. While we classify this disease as mildly tubercular, the chances are that many cases are non-tubercular and a few tubercular, but, inasmuch as some of them end in a well-marked tuberculosis, it is well to be on the safe side and to look upon all cases with suspicion.

A careful study of this disease, and of the one previously described in this paper, teaches us that it is unwise to exclude tuberculosis from our reckoning in joint-diseases, simply because the well-known white swelling of tuberculosis is absent. The treatment should at first be rest with pressure by an elastic bandage. If, in spite of this, the effusion should increase, and the integrity of the joint be endangered, the fluid should be drained off by passing a small trochar into either side of the joint, and the joint then irrigated with an iodine solution of port-wine color, followed by rest in a plaster cast or long posterior splint. After this treatment the patient will suffer a slight reaction for the first twenty-four hours with considerable pain, after which he is perfectly comfortable. As a rule, one irrigation is sufficient, but sometimes it is necessary to repeat it.

*Charcot's disease*, or *spinal arthropathy*, is another rare disease, although it is much more common than either of the other two already mentioned. Under this name we have a joint-disease which occurs in the course of *tabes dor-*

salis or locomotor ataxia. It resembles rheumatoid arthritis, but occurs only in persons suffering from a cord-lesion. It is doubtless due to a disturbance of the nerve supply to the joint on account of the cord-lesion. It occurs, as a rule, after the central lesion has been diagnosticated, but may occur while the cord-lesion is still overlooked, when it is almost certain to lead to mistaken diagnosis. Charcot claims that arthropathies are present in ten per cent of all cases of tabes, but others have not noticed so large a percentage. It appears suddenly as a painless swelling, and may, in the course of a day or two, assume considerable proportions. It is at first seemingly a simple synovitis, but later definite anatomical changes take place. It is pathologically a rarefying osteitis. The synovial membrane is thickened, and the cartilage is gradually destroyed by fibroid degeneration. Both the synovial membrane and the cartilage are entirely destroyed at points where pressure is the greatest, and the ends of the bones come in contact, and are worn down smooth so that crepitus can be felt. Around the edges of the bone and at points where there is no pressure, osteophytes form, and these may become loosened so that they feel like foreign bodies in the joint. The ligaments are softened and destroyed. Dislocation usually occurs, and fracture is quite common. The knee- and hip-joints are usually affected; but it may occur in other joints. More than one joint may be affected at the same time; but I have never seen more than two such joints in one patient. The joint becomes quite useless from destruction of the ligaments; but there is notable absence of pain. All of the patients suffering from this disease are suffering from syphilis; but it is not classed as a syphilitic lesion, because it does not occur in a syphilitic patient until after the cord-lesion has developed. When the patient has the usual symptoms of tabes it is easy to make the diagnosis; but it should be remembered that a patient suffering from syphilis may also develop a tubercular joint. In the absence of characteristic symptoms of tabes the diagnosis is made upon the peculiar feeling (like a bag of bones) and upon the absence of pain and local temperature. The importance of diagnosis is to prevent a wrong prognosis and unnecessary treatment, as well as to save the reputation of the doctor. The prognosis is hopeless, for, with or without treatment, the tendency is for the disease to progress, and destroy the function of the joint. The joint-disease does not directly endanger the pa-

tient's life, but he is doomed on account of the cord-lesion, which eventually ends in death. There is no curative treatment. These joints have been excised, mostly upon mistaken diagnosis; but results have not been encouraging enough to justify the procedure. Surgeons were tempted to perform excision because when fractures occur in these patients there is usually quite prompt union of bone. I have knowledge of a patient at the present time in Minneapolis who has a Charcot ankle and elbow. He recently sustained a fracture of the tibia in the vicinity of the joint, which united with a reasonable degree of promptness without adding to the disability of the joint. Although this patient's elbow is so disorganized that it is practically a flail-joint, with well-marked crepitus, he uses this arm every day in running his electric car, because of the absence of pain. He was advised not to use the arm, because it would naturally make the joint condition worse, but he is quite a philosopher, and concluded that inasmuch as his life is short he might as well use the joint while he can. In the lower extremities when the ligaments are destroyed so that the joint will not carry the body-weight, mechanical appliances are helpful, although their use has no tendency to cure the disease.

Persons suffering from a hemorrhagic diathesis sometimes develop a rare joint condition known as a "*bleeder's joint*," or a *hemophiliac joint*. This disease is characterized by an effusion of blood into the joint, which may remain fluid for a long time, and finally coagulate. The knee is the joint most frequently affected, but occasionally it occurs in other joints. It occurs most frequently in the male, because there are more male hemophiliacs. The hemorrhage may be intra-articular or periarticular. It sometimes comes on as the result of a slight traumatism, or may appear without apparent cause. After repeated acute attacks, joint changes are likely to occur. There is an overgrowth of brown-stained synovial tufts; the cartilage may degenerate; adhesions, contracture of the capsule, and bony displacement may occur. Erosions of the ends of the bones may take place along with proliferation at the edges not unlike arthritis deformans. Although beginning abruptly the affection is essentially chronic. Swelling and muscular spasm are present; and it is sometimes impossible to make a differential diagnosis between a hemophiliac and a tubercular joint unless there is a clear history of hemophilia. Sudden swelling of a joint, with or without traumatism, in a person known to be a "bleeder," is

very liable to be a hemophiliac joint. In the absence of history of bleeding the diagnosis may be very difficult. The swelling develops suddenly, and is accompanied by pain, due to over-distension of the joint, and by local and general temperature, the latter being due to the absorption of the effused blood. When the hemorrhage is extra-articular the diagnosis is comparatively easy, because of the bluish color. There is an obscure fluctuation, not nearly so distinct as in hydrops articuli, and the joint is tender to the touch.

It is very important to make a diagnosis, because many cases are on record in which operations were performed upon a joint supposed to be tubercular, and the patients have lost their lives. The writer has had one such experience where he operated for an excision of the knee upon a diagnosis of tuberculosis. A number of other surgeons, among whom was the late Nicholas Senn, had examined the joint, and pronounced it tubercular. The woman lost her life eight days after the operation from a steady oozing which it was impossible to control. Either this woman did not know that she was a "bleeder," or had forgotten, because she gave no history to call attention to this condition.

The prognosis in these cases is grave, but not hopeless. There is a marked tendency to recurrence of hemorrhage in the same joint, and to hemorrhage in other joints. I have one patient

whom I treated for a hemophiliac knee-joint fifteen years ago, who is now a full-grown healthy man. The knee required constant attention for about three years; and about ten years after the original hemorrhage he had another one. Notwithstanding this experience his knee is now seemingly in perfect condition. I have been called to see him twice within the past five years, once for hemorrhage into the knee and once for the shoulder. The chances are that he will have no further trouble, because the hemorrhagic tendency dies out as the patient grows older.

The treatment of these cases consists of rest and elastic pressure. There is a strong temptation to aspirate the joint, when it becomes painfully distended, but this is a dangerous undertaking, and should be resorted to only when the distension is so painful and so extreme as to endanger the integrity of the joint. It has been clearly proven that hemophilia is not due to a disease of the blood-vessels, but that it is due to a lack of those elements in the blood which cause coagulation. The most modern treatment is the hypodermic injection of from three to five minims of blood-serum, to be repeated according to indications. This blood-serum causes a leukocytosis, and these new leukocytes produce a material which increases the coagulability of the blood.

## VACCINE THERAPY\*

By HENRY L. ULRICH, M. D.  
MINNEAPOLIS

Vaccine therapy has won a legitimate place in the practice of medicine. Its rationale is far more correct than that of many drugs in daily use. We know vaccines create specific antibodies. What do we know of the action of calomel, magnesium sulphate, the iodides, to say nothing of the other drugs in daily distribution?

To use vaccines correctly and legitimately in any given case, the knowledge of four groups of facts is essential. They are as follows:

1. An accurate clinical diagnosis.
2. A correct estimation of the pathological reactions involved.
3. An accurate bacteriological survey.
4. A thorough comprehension of the laws of the ebb and flow of the immunizing responses for every infectious process.

Two corollaries go with these facts, namely:

1. Honest manufacture of vaccines.
2. The case must have the ability to make antibodies when stimulation is attempted.

Three types of vaccines have developed since Wright's original communications:

1. The autogenetic, erroneously but commonly called *autogenous*.
2. Stock vaccines,—simple, polyvalent, and mixed.
3. Phylacogens, or endotoxins.

A modified form of autogenous and stock vaccines are the so-called sensitized vaccines. Theoretically, they are supposed to be far superior to the original vaccines.

Autogenous vaccines have a rightful place in treatment but to be of value they must submit to the principles already enumerated.

\*Read before the Hennepin County Medical Society, Feb. 1, 1915.



Stock vaccines have a limited place of usefulness. They are constantly arousing the question of specificity, and therefore can never accord with the principles above.

Phylacogens are still more problematic, both in origin and specificity. They do not accord at all with the previously stated principles, and therefore must be condemned.

Mixed stock vaccines and phylacogens remind one of the blunderbuss polypharmacy of former years; and much of the dissemination of their literature and teachings smacks of the olden days of polypharmacy, with its large and fat drug-houses and their obsequious but instructive and insinuating agents called representatives.

There are three types of end-results following any infectious process:

1. Complete sterilization or complete immunity, i. e., the end-result is restitution.
2. Complete intoxication or no immunity, i. e., the end-result is death.
3. Incomplete sterilization or partial immunity, i. e., the end-result is incomplete restitution. The invading organism lives as a parasite or semiparasite at one or more points of the body. This is the usual picture of chronic infectious processes. Chronic focal infection is a beautiful example of this type of end-result.

The patient in the first group goes his way rejoicing. The patient in the second group goes his way forgotten. The patient in the third group is the one who has haunted the medical offices crying for relief, who has been the prey of quick surgery methods, who has filled the coffers of the quacks and proprietary medicine-mongers, and who has flooded the armies of the Osteopaths, Chiropractics, and Christian Scientists.

When the significance of the doctrine of focal infection is fully realized, abdominal surgery on infectious processes will be done with an eye to the cleaning up of all foci. Nose and throat men will operate with this new point of view. The internist will not dismiss his case with masterful review of heart-murmurs and a bottle of digitalis; he will now enumerate all foci involved, what localities need reduction, and the ways and means of possible activities against irreducible foci. It is fortunate that so many foci lend themselves to reduction. The tonsils, the alveolar abscess, the sinus, the appendix, and the gall-bladder can be attacked most readily by surgery. The bronchial tubes, peribronchial glands, joints, muscles, tendons, nerve-sheaths, gastric and duodenal ulcers, kidney, prostate, and bladder are foci for problematic treatment.

In a recent clinical analysis of fifty cases of streptococcal focal disease, twenty-four cases were included in the rheumatoid group. By this class I mean patients suffering from arthritis deformans, acute, subacute, or chronic rheumatoid arthritis, myositides, neuritides, without cardiac involvements. In some of these removal of all foci available gave prompt relief; in others the foci in joints, muscles, tendons, and nerves persisted after all possible surgery had been done. Rolleston (Proceedings of the Royal Society, Vol. vii, No. iv, p. 91, "Vaccines from the Standpoint of Physicians") says: "At the present time the results of vaccines are so uncertain that their use appears to be justified only when trustworthy therapeutic methods have failed, or do not exist."

This is precisely the situation that men with this line of argument are in in the subacute and chronic arthritis cases after all available foci have been removed.

Salicylates, rest, tonic, and diet are old, tried, and *trustworthy* methods, but they have failed. It is obvious that vaccine therapy properly conducted is indicated.

The reports on vaccine therapy in the literature for rheumatoid conditions are too general, and the experiences too recent, to draw definite conclusions. Records are at hand of cures or partial cures of arthritis with streptococci isolated from many parts of the body, such as the blood, gums, tonsils, glands near joints, bronchial secretions, urines, prostatic secretions, and feces. In my own experience I wish to mention ten cases of arthritis, myositis, and neuritis treated with vaccines made from streptococci obtained from blind dental abscesses in nine cases, and in one from a pyorrheic pocket. Five of these have been completely relieved; four partially improved; three are still under treatment and getting better; one stopped treatment: one case was a failure, the arthritis and nerve pains were due to syphilis, an accurate clinical diagnosis had not been made.

The less chronic the case is, the better it responds to vaccine therapy. Bier's hyperemia or massage is indicated to increase the penetration of antibodies to the affected joints. Deformities should be in the hands of an orthopedist.

In my opinion very many poor results have been obtained in the vaccine therapy of chronic middle ear, pharyngitis, sinusitis, bronchitis and prostatitis, is due to the fact that a focus had been constantly overlooked. This focus is the ubiquitous blind alveolar abscess.

# MASTOID ABSCESES: SOME INDICATIONS FOR OPERATION

A Clinical Lecture

BY FRANK C. TODD, M. D.

MINNEAPOLIS

If we study the anatomical construction of the interior of the temporal bone, we observe that the middle ear is a cavity not over three-eighths of an inch in diameter, and about one-sixteenth of an inch deep; that it communicates with the mastoid antrum by way of an irregular canal called the aditus ad antrum; and that the antrum communicates with other cells which radiate from it like the spokes of a wheel from the hub. As a matter of fact the middle ear and antrum may be looked upon as one cavity separated by a constriction, and in many specimens it will be observed that this aditus ad antrum is quite large and that the communication between the middle ear and the antrum is therefore free and open.

When a patient develops an acute middle-ear abscess, swelling of the lining membrane takes place, and this swelling may close the aditus ad antrum, thus preventing infection of the mastoid antrum and cells, but in other instances, particularly where the anatomical construction is such that the aditus ad antrum is too large to become readily closed, the mastoid may become easily and sometimes rapidly involved, this taking place more easily where the secretion is thin. When the mastoid cells become involved and filled with pus, drainage by way of the middle ear is poor because the mastoid cells are nearly all situated below the mastoid antrum and drainage into the middle ear and out through the drum membrane only takes place when the secretion fills the cells and spills over into the middle ear.

In most cases the middle ear is first to become affected, and drainage is perhaps secured as a result of prompt incision of the drum membrane or by rupture. The patient is then relieved. A week or more later there is a recurrence of pain and other symptoms indicating confined pus. This is due to the involvement of the mastoid. Such mastoid involvement may have occurred coincidentally with the middle ear infection without the development of mastoid symptoms, but more likely has come on later, or else has become more general so that secretion of pus is extensive and drainage so poor that the cells become over-filled or severely inflamed, and the symptoms of secondary involvement of the mastoid become manifest. These few points should be borne in mind when we come to the question so important

to determine, should a mastoid operation be performed in the case under consideration?

To begin with let us bear in mind that we are here dealing with an abscess and that when we open the mastoid cells we are simply securing adequate drainage; that it differs little from an abscess elsewhere excepting that many bone cells must be freely opened and drained; and that the field of operation on account of the contiguity of the brain and sigmoid sinus is limited. Because of the great dangers that may arise as a consequence of this unreleased confined pus, the importance of drainage is even greater than in the case of an abscess in most other locations. There should be no hesitation about operating here any more than for an abscess elsewhere if drainage is required. The fact that one is obliged to open into bone, does not alter the case.

The mastoid operation performed for acute mastoiditis, done by one who is experienced in mastoid operations, is practically without danger. In considering the question of whether or not to operate in any individual case we must bear in mind that the danger lies not in the operation, but in the disease. Macewen well expresses the dangers of a middle-ear abscess when he compares the condition to the presence of a charge of dynamite which may explode at any time.

## INDICATIONS

*Character of Infection.*—A streptococcic infection is especially apt to be rapid and give rise to complications such as sinus-thrombosis and meningitis, and where evidence of mastoid involvement occurs there should be no delay in operating. A streptococcic infection should be drained as soon as possible. In the case of pneumococcic or staphylococcic infection with doubtful mastoid involvement the operator may more safely delay. But in any kind of infection where there is swelling, pitting on pressure, and marked tenderness combined with middle-ear suppuration, there can be no question but that a mastoid operation should be performed, for such cases rarely recover without operation, and if they do they are very apt to recur. It is not difficult to convince physicians and patients that such cases should be operated upon. It is those cases where the external signs, such as swelling

and marked tenderness, are not present which give me most concern, because often this lack of swelling and tenderness is merely due to the fact that the external plate of bone is thick and that the deeper cells are more involved, really a more dangerous condition. In such cases the one symptom which I would classify as the most prominent indication of the necessity for a mastoid operation is the presence of a persistent and profuse discharge from the middle ear. *Such a persistent and profuse discharge comes, and can only come, from a larger area than the middle ear; this means the mastoid cells.* Sometimes such a persistent discharge is accompanied by fever, pain, and malaise, and perhaps some other symptoms. Sometimes, however, particularly in a pneumococcic or staphylococcic infection where the drum membrane has been freely opened, there may be present very little if any fever, and only a persistent and profuse discharge. In all such cases that I have operated on I have found present extensive mastoiditis; and in a number of cases where the discharge has persisted for a long period (I am only considering what may be classified as acute cases) I have found considerable destruction of bone tissue, not infrequently finding the sinus and dura mater exposed.

In some cases of middle-ear abscess with mastoid symptoms it may be difficult to determine whether or not the patient may safely recover

without operation. In such instances a good rule to follow is the following: *In cases of doubt give the patient the benefit of the doubt, which consists in securing free drainage from the mastoid, thereby not permitting the disease to progress until more serious consequences, such as sinus-thrombosis or brain complications, occur.*

I have here only tried to bring out some points that seemed best to emphasize, and the subject is not considered exhaustively. When the point has been determined that a mastoid operation should be performed, or that the patient is not likely to get well without a mastoid operation, and the patient's consent has been secured, the operation should be performed at once. Under such circumstances the sooner the operation is performed the quicker will healing take place, and less risk is incurred of possible fatal complications.

#### SUMMARY

1. A mastoid operation is merely securing proper drainage.
2. The mastoid operation done by an experienced operator is without danger.
3. A mastoiditis which has apparently recovered without an operation is apt to recur.
4. Cases without manifest external signs, such as swelling and tenderness, are often most dangerous.
5. A prominent indication in doubtful cases is a persistent and profuse discharge.

## A FOREIGN BODY IN THE BLADDER: REPORT OF A CASE

By BYRON A. BOBB, M. D.  
MITCHELL, SOUTH DAKOTA

While I have had and have seen reported almost every imaginable article capable of being introduced into the bladder through the urethra, I have never known before of a patient trying to take her temperature continuously by housing a thermometer in her bladder.

Woman, age about 26, married, one child, and generally healthy, except of the neurasthenic type.

About three weeks previous to coming to the hospital she developed a very serious cystitis which would not yield to the ordinary treatment with rest in bed.

Bladder revealed what we believed to be quite a large stone. Four days after the stone searcher was used patient submitted to an operation, which was done suprapubically. To our surprise we removed an ordinary glass thermometer, about three and one-half inches in length, the bulbous end of which was imbedded in the walls of the bladder, near the trigone. The patient claims having no knowledge as to how this came to be there, but states since the operation, that for the past two or three years she has had some attacks of cystitis.

The patient is making a nice recovery.



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## THE AMERICAN MEDICAL ASSOCIATION MEETING

The American Medical Association meets this year in San Francisco, from June 21st to June 25th, inclusive. The last meeting of the Association in California was held in Los Angeles and a small number were registered. Our recollection is that there were 1,150, and the majority of these men were from California. It is to be hoped, however, that the present war, which prevents so many physicians from going abroad, and the beauties of the fair buildings at San Diego and San Francisco, will result in a large attendance.

San Francisco is the most desirable place in the West for such a meeting. It is a city of wonderful pretensions, with hotels which are unsurpassed by those of any of the Western cities, and a city which shows the wonderful commercial and enterprising spirit of a "burned town."

There are many societies which will meet before and during the American Medical meeting. For instance, the Pan-American gathering takes place during the week of June 14th. Here will be found representatives from almost all of the distant countries, but particularly of the Western hemisphere. It is hardly likely that the at-

tendance from any of the European countries now engaged in the great strife will be large.

These international meetings are always of great interest and it would be advisable for one to go a week ahead of the stated time in order to see what is accomplished by the meetings of people speaking so many different languages. Their programs are arranged rather better than the average and they present their subjects directly and clearly without even the aid of an interpreter. Then, too, the bulletin which follows the day's meeting contains a translation of all the papers.

The attendance from Minnesota ought to be large and doubtless will be on account of the special train containing the members of the American College of Surgery, which goes from Rochester for this meeting. This train runs over the Great Western road and directly to San Francisco. Arrangements can also be made whereby one can stop off and visit the Mormon Church at Salt Lake City.

It is also time to make hotel reservations, as this does away with a great deal of difficulty and secures prompt service.

## THE MINNESOTA STATE LEGISLATURE

The citizens of Minnesota, as shown by a sudden change in the wind, have evidently heaved a tremendous sigh of relief at the adjournment of the State Legislature. It has been interesting, in a way, to watch the athetoid movements of this ponderous and untrained body. The members met with a purpose in mind, and each man had his own purpose. There were no leaders, in the House particularly, each man considering himself quite capable of conducting his own affairs and the affairs of the State. As a result, chaos existed with unrestricted and simultaneous debates, cross-examinations, and oratorical flights. The speaker of the House was unable, during most of the time, to control this body of new, untrained legislators, and not infrequently pandemonium reigned where order should have prevailed. There seems to be something in the atmosphere of the whole country, we people of Minnesota not being the only ones to have suffered from just such a condition. In the South and East general complaints have been registered as to the poor work and the uncertainty of the legislatures. Minnesota projected more than 2,000 bills, of which

about 394 were passed. For this much we are extremely thankful.

Apparently the Legislature met to pass two bills, the County Option bill and the Economy and Efficiency Commission bill. The first was passed amid fears and tremblings. Men hesitated as to whether they believed in it or not, and those who wished it to go through were probably as much surprised to think it went through as were those who hoped that it would not.

This Legislature was known as a trading house, where all sorts of pledges were given for the support of certain bills, but when the final vote was registered, many of the promised supporters turned tail and fled—that is, they voted on the other side.

One rather striking illustration of the way in which the bills were passed was the passage in the Senate of the Anti-Affiliation bill. This passed with a scant majority and was finally passed because the promoters of the Boxing bill lent their support with the idea that the opposition to the affiliation would support the boxing measure. If anything could be more absurd in legislative movements than this sort of thing, the writer has no means of verifying it.

The Efficiency and Economy bill fell down hard because the proposition was too big for the Legislature to undertake. They began to realize that a change of government was not boy's play, and that it required the services of experts covering a long period, and a careful study of all situations. This is to be taken care of at the next session by a special commission, to be appointed later. Doubtless many of the uncertain qualities in the first report will be corrected and amended. It was found that efficiency and economy did not always go hand in hand, and that no money could be saved the State by the passage of the original bill.

The same old trouble arose over appropriations. The committees of the Senate and the House were determined to cut and slash down to the cuticle, and they evidently did so. The University was cut down in a very disproportionate manner (\$600,000), which will cripple its workings for the next two years. The men who have been members of the Faculty and who expected advances in salary will probably again be disappointed, and doubtless some of them will seek other fields where their financial condition will be better. Already some members of the Faculty have resigned. It is a crying shame that the State of Minnesota, so rich in resources,

should not be willing to pay its educators a living wage.

Then, too, the State Board of Health went through the usual routine in its effort to get enough money to carry on its work.

As the appropriations stand now, the prospects are that some of the best trained workers employed by the State Board of Health will have to be dropped from the pay-roll. It also means a crippling of laboratory work, and it means more than this, a crippling of field work and a loss to the State Board of Health of men who are experienced and who have grown up with the health problems of Minnesota. No one need be surprised if their requests are turned down. Investigations which the State Board of Health has been making throughout the State for the last two or three years will also have to be dropped, and only the most important requests for investigations of epidemics, and the like, will be taken care of.

Perhaps the State Board of Health can wiggle through in some way, but it is extremely doubtful, as it will be impossible for it to go before the next Legislature with a deficit bill.

If economy and efficiency are demanded by the voters, taxpayers and politicians, it must keep the population well and educate them. These two are prime essentials, and nearly everything else can be subordinated to them.

APPROPRIATIONS

The following appropriations were made for the State Board of Health and the Advisory Commission:

THE STATE BOARD OF HEALTH

1. For maintenance .....	\$14,500
2. For maintenance, available for year ending July 31, 1915 (one-half amount asked for) .....	8,000
3. For recording vital statistics.....	5,000
4. For dealing with preventable diseases.....	15,000
5. For expense of maintaining laboratories... (\$3,000 of which amount shall be applied to the maintenance of the public laboratory at Duluth, \$2,500 to the maintenance of the public laboratory at Mankato, \$14,500 to the maintenance of the public laboratory of the Board of Health at the State University at Minneapolis.)	20,000
6. For providing free antitoxin.....	5,000
7. For conducting Pasteur institute.....	7,000
8. For sanitary engineering work.....	7,000
9. For dealing with and caring for indigent non-residents who are carriers of typhoid fever or other infectious diseases, available for the year ending July 31, 1915....	500

10. For dealing with and caring for indigent non-residents who are carriers of typhoid fever or other infectious diseases..... 500

These amounts for the next biennial period are the same as for the last biennial period with the exception of the following:

1. For the period ending July 31, 1915..... \$8,000
2. Expense of maintaining laboratories..... 20,000  
(This is \$2,000 more than the appropriation for the present biennial period).
3. Free antitoxin (this is entirely new)..... 5,000
4. Caring for non-resident typhoid fever carriers per annum..... 500

The total appropriations for the present biennial period were \$66,500 per annum, but we have been spending in excess of that. The Board has assumed that it was its duty to answer the calls of the people, and has supposed that the Legislature would appreciate the fact that these calls were necessary and would therefore provide the necessary funds.

During the present year the Board has been spending at the rate of about \$89,000 per annum. The funds available for this year were \$68,000. The \$8,000 additional, given by the Legislature to help the Board through, makes a total of only \$76,000. This leaves a shortage of about \$13,000. Therefore, it means a decided cutting down of expenses for the next three months. During the fiscal year ending July 31, 1913, there was \$84,000 to spend. With the \$8,000 that has been given by the Legislature to help out for the present year, there is still \$8,000 short of what was spent two years ago, and this in spite of the fact that the work has increased by leaps and bounds, from 92 per cent to 325 per cent in some departments.

The Board has not done any very active work on tuberculosis until within the last year or so, simply because there was no way to take care of the tuberculous when we found them. A special appropriation was asked for this work. None of this was granted by the Legislature, but the Advisory Commission was given \$5,000 more per annum for maintenance than it actually asked for. In other words, it was given \$15,000 a year to carry on its affairs. It had \$10,000 a year for the present biennial period.

The Advisory Commission is also given \$100,000 a year for plans, construction, and equipment of hospitals and sanatoria for the tuberculous and for the care of inmates therein.

## REPORTS OF SOCIETIES

### THE MINNESOTA ACADEMY OF MEDICINE

The April meeting of the Academy was held at the St. Paul University Club, Wednesday evening, the 7th. The meeting was called to order by the president, Dr. Frank C. Todd.

The minutes of the preceding meeting were read and approved.

It was voted that the vacancy in the Minneapolis membership be filled at this time. Dr. John Butler was unanimously elected.

A ballot was also taken on the name of Dr. Theodore Bratrud, of Warren, Minn., for associate membership, which also was unanimous.

The name of Dr. H. T. Nippert, of St. Paul, was proposed for membership by Drs. A. W. Dunning, Cornelius Williams and Arnold Schwyzer. Referred to the executive committee.

While the election was going on, several case reports were made and discussed.

Dr. L. B. Wilson, of Rochester, presented a paper on "Suggestions for Increasing the Efficiency of Autopsy Service," discussed by Drs. White, Cross, and Abbott.

This was followed by a short paper by Dr. A. A. Law on "Autografts," the essayist showing a great number of stereopticon slides in illustration of his subject. Dr. Law's work was praised by a number of the surgeons present who entered into the discussion. The paper was to have been given a month later, but Dr. Corbett, who was on the program of the evening, was taken ill shortly before, and Dr. Law took his place.

The attendance was the largest of the winter, there being thirty-six members and two visitors present.

FRED E. LEAVITT, M. D., Secretary.

## NEWS ITEMS

A hospital is advocated for Ada.

Dr. A. M. Wooster, of Hills, is located in Sherburn.

Redwood is to have a modern hospital in the near future.

Dr. R. W. Meadows, of Napoleon, N. D., has moved to New Rockford.



Dr. J. H. Vallancey, of New Rockford, N. D., is to locate in Fessenden, N. D.

Dr. J. F. Hammond, of St. Paul, has left for Canada to enter the army medical service.

Eight thousand dollars have been raised for the hospital to be built at Faulkton, S. D.

The Minneapolis Swedish Hospital has recently graduated ten nurses from its training-school.

Work on the new Physicians and Surgeons Hospital at Thief River Falls is well under way.

Dr. D. E. Baxter, formerly of the Minneapolis City Hospital, has formed a partnership with Dr. Joseph Nicholson, of Brainerd.

The offices of fourteen physicians and dentists in one Minneapolis office building were raided at one time, evidently by drug-hungry thieves.

A meeting of the Board of Regents of the University of Minnesota is to be held May 6th, at which time the matter of the Mayo-University affiliation will be taken up.

Five University of Minnesota Medical School graduates have been named to take the final year of their work as internes in the St. Paul City Hospital and four in the Minneapolis City Hospital.

The Senate of the Minnesota State Legislature passed the bill which would prevent the University of Minnesota from affiliating with any private institution. The bill did not come before the House.

Twenty members were present at the April meeting of the Devils Lake District Medical Society (North Dakota), held at Devils Lake. The meeting was devoted to informal talks and a discussion on hemophilia.

Governor Hammond has appointed to the State Board of Health Dr. R. C. Hunt, of Fairmont, to take the place of Dr. B. J. Merrill, of Stillwater, and reappointed Drs. C. W. Moore, of Eveleth, and W. A. Jones, of Minneapolis.

At the April meeting of the Watertown District Medical Society (South Dakota), held in Aberdeen, the following doctors took part: C. S. O'Toole, Watertown; H. C. Parsons, Watertown; W. J. Benner, Willow Lake. The attendance was very good.

Dr. Thomas Lowe, of Pipestone, and Dr. P. C. Pilon, of Paynesville, have been appointed to the State Board of Medical Examiners of Minnesota to succeed Drs. John Campbell, of St. Paul, and A. G. Moffat, of Howard Lake. Dr. Thomas McDavitt has been reappointed.

While no beds are to be made vacant at the Minneapolis City Hospital, the lack of funds will compel the most rigid economy. More strict regulations will be enforced and a woman investigator will be employed in an effort to compel all patients who are able, to pay a reasonable amount for their care.

At the annual meeting of the Stearns-Benton County Medical Society, held in St. Cloud, Dr. C. F. Brigham, of St. Cloud, was elected president for the coming year, and Dr. Wm. Friesleben, of Sauk Rapids, vice-president. The Society went on record as favoring the Mayo-University affiliation.

The State Hospital for Crippled Children at Phalen Park will be financially well cared for during the next two years. The Senate Finance Committee has recommended that \$45,000 be appropriated for the institution for the next fiscal year, and \$37,500 for the second year of the biennium. Of this amount, \$12,500 will be set aside for the maintenance of the branch of the institution which cares for blind babies.

A reference book on the Harrison Narcotic Law has been published by Daniel R. Forbes, an attorney of Chicago, which should prove of interest to physicians. The booklet contains a concise and accurate analysis of the law and regulations, indexed to enable the busy practitioner to turn immediately to the points upon which he desires information. Copies of the book may be obtained at THE JOURNAL-LANCET office for twenty-five cents.

Anyone interested in a little deaf child can obtain free literature explaining approved methods of training deaf children from infancy to school age by writing to The Volta Bureau for the Increase and Diffusion of Knowledge Relating to the Deaf, 1601 Thirty-fifth St., N. W., Washington, D. C. This literature relates only to the training of deaf children, not to medical treatment, nor to the deafness that comes in later life. Age and other details are welcomed.

The Lake Preston District Medical Society (South Dakota) met in Lake Preston April 28th. The program was as follows: "Fecal Accumulation with Diarrhea," by Dr. C. T. Helme, Badger; "Lobar Pneumonia and Its Complications," by Dr. O. R. Wright, Huron; "Polycythemia with Splenomegaly," by Dr. R. S. Westaby, Madison; "Adenoids: Why Remove Them?" by Dr. L. N. Grosvenor, Huron; "Report of Pierre and Aberdeen Meets," by Dr. L. N. Grosvenor, Huron.

Out of six United States physicians sent to Serbia in one unit, two are dead and three are stricken with typhus. Nine of the twelve nurses of the same unit have the disease. Dr. Ethan Flagg Butler, of Washington, is the only one of the six American doctors who has not contracted typhus. Dr. James F. Donnelly, of Brooklyn, died a few weeks ago. Dr. E. W. Ryan, of Washington, Dr. Clapham P. King, of Annapolis, and Dr. Morton Paul Lane, of New Orleans, are now suffering with typhus.

All doctors who are members of the North or South Dakota State Medical Association should help not only their society but themselves by attending the annual meeting to be held this month. Some doctors seem to get along without belonging to the County or State Association, but there is no help like that of the example and fellowship of others interested in your profession, and this is best obtained by meeting your associates at the society meetings. Make it a point to go, and take some other doctor with you.

The Swedish Hospital, of Minneapolis, has made public a proposition which it submitted to the Board of Regents of the University of Minnesota whereby the hospital is ready to offer to graduates of the Medical Department of the University five fellowships for a period of three years commencing July 1. Each fellow is assured the fullest opportunity for study, research and practice in surgery, medicine, gynecology, obstetrics, bacteriology, pathology, and roentgenology. Each fellowship would carry an emolument of \$600 the first year, \$900 the second, and \$1,200 the third year. A committee has been appointed which will meet with members of the Medical School to discuss the plan.

The death has been announced of Prof. Friedrich Loeffler, the German scientist, who, in 1884, discovered the diphtheria bacillus. Prof. Loeffler achieved international fame when he gave a systematic description of what is known as the Klebs-Loeffler bacillus, which was afterward proved to be the "causa causans" of diphtheria. In 1900 Prof. Loeffler, together with Prof. Koch and Prof. Gaffky, conducted an investigation which formed the foundation of the modern steam disinfection process. Prof. Loeffler also was the discoverer of the "mice typhoid" bacillus, which proved to be the most useful factor in the removal of the mice plague. He was the author of many epoch-making hygienic treatises, one of the most important ones being a treatise on malaria.

The State Advisory Commission of the Minnesota Sanatorium for Consumptives has been justified against the charges made which were directed to the end of removing county sanatorium work from the Commission. The Civil Administration Committee of the Minnesota Senate devoted two evenings last week to a hearing on the charges against Dr. H. Longstreet Taylor, of St. Paul, the chairman of the Commission. The charges were that Dr. Taylor had sent to his own sanatorium a patient intended for the State Sanatorium. The committee, after the hearings, agreed that the charges were entirely without foundation. The leaders of anti-tuberculosis work in this State who know of Dr. Taylor's work are greatly pleased at his full and complete vindication from the personal charges made against him.

The following interesting program has been announced for the twenty-eighth annual meeting of the North Dakota State Medical Association, to be held in Bismarck on the 12th and 13th:

Invocation, by Rev. C. W. Harris, D. D.; "Address of Welcome," by C. L. Young, President of the Commercial Club; "President's Address," by Dr. R. Hudson Beek, Lakota; "The Morphine Habit and Its Treatment," by Dr. A. J. Paulson, Flaxton; "The Indian Medical Service," by Dr. P. F. Rice, physician Standing Rock Reservation; "Relation of the Ocular Diseases to General Medicine," by Dr. C. E. Spicer, Valley City; "Some Impressions on the Goitre Question," by Dr. R. H. Ray, Garrison; "Congenital Fracture of Clavicle, Four Cases, All Brothers," by Dr. S. Johns, Velva; "Operative Treatment of Bad Results After Fracture," by Dr. J. E. Moore, Minneapolis; "Contribution of the 20th Century Toward a Better Understanding of the Gastro-Intestinal Ailments," by Dr. Frank W. Smithies, Chicago; "Psychotherapy," by Dr. G. J. Gislason, Grand Forks; "Two Hundred Lung Cases, Some Conjectures and Conclusions," by Dr. J. G. Lamont, Dunsieith; "A Single Examination for Those Who Treat the Sick," by Dr. H. E. French, University; "Varieties of Volvulus," by Dr. R. E. Weible, Fargo; "Our Duty to Mankind, Some Corrective Legislation," by Prof. E. F. Ladd, Fargo; "The Mouth as a Factor in Pathogenesis of Heart, Kidney, and Joint Inflammations," by Dr. Thos. B. Hartzell, Minneapolis; "The Development and the Present Status of the Public Health Laboratory of North Dakota," by Dr. L. D. Bristol, Grand Forks; "Surgical Shock," by Dr. R. D. Campbell, Grand

Forks; "Organization and Co-operation," by Dr. J. Grassick, Grand Forks; "Sanitary Survey of Schools by the Teacher," by Dr. A. A. Whittemore, Bowman. The annual banquet will be held at Hotel McKenzie, Wednesday at 8 p. m. The meetings will be held in the Commercial Club rooms. Entertainment has been arranged for visiting ladies. The House of Delegates meets on the 11th at 2 and 8 P. M.

#### ASSISTANT WANTED

In general practice in Minnesota. Good proposition for the right man. Address 220, care of this office.

#### PRACTICE FOR SALE

Physician's practice in unlimited territory. Excellent place for surgery. Address Box 204, Watford, N. D.

#### POSITION WANTED

A young lady with experience as doctor's assistant wishes position in a physician's office. Good references. Address 215, care of this office.

#### LOCUM TENENS WANTED

Physician to take charge of my practice for six or eight weeks, beginning about May 15th or 20th, while I am away taking postgraduate work. F. K. Kolb, M. D., Granville, N. D.

#### PRACTICE FOR SALE

Located in eastern North Dakota, in a good modern town, good farming country surrounding. Practice pays \$3,600 a year. No real estate. Price reasonable. Address 210, care of this office.

#### LOCUM TENENS WANTED

Would like a physician to take charge of my practice for a month or six weeks beginning May 1 while I am East taking post-graduate work. R. J. Church, M. D., Park River, N. D.

#### POSITION AS LOCUM TENENS WANTED

For four weeks during the month of June or July. Prefer a town with little or no competition. Am 30 years of age; can give best of reference; have had hospital training. Address 212, care of this office.

#### SURGICAL PRACTICE WANTED

I wish to buy a well established practice in a town of not less than 3,000 population. Would prefer one in which there is a hospital. Might consider the purchase of a hospital also. Can pay cash if desired. Give all details as to practice, surrounding territory, etc., in first letter. Address 214, care of this office.

#### PRACTICE FOR SALE

One of the best locations in Minnesota. A fine city and country territory. Rich and large, thickly settled; mixed nationality. Two doctors in city. A fine residence with all modern conveniences, automobile, horse, and buggies optional. Price right. A doctor who is competent and willing to work can surely make good. If I sell I am going to California. Address 216, care of this office.

#### PRACTICE FOR SALE

Property for sale or rent. In southern Minnesota. Physician's beautiful ten-room, modern home and office, and garage in very prosperous town. Two railroads, fine school and churches; thickly settled German-Norwegian country; two towns without doctors. Practice, \$4,500, can be increased by office work and surgery; collections 100 per cent; thorough introduction. A rare opportunity. Address 217, care of this office.

#### EQUIPMENT FOR SALE

The following at your own price: Sinusoidal and Galvanic plate, Kellogg's, cost \$120; electric light bath cabinet, Kellogg's upright, sells for \$350; Oxyoline machine, Neal Armstrong, four-patient, cost \$550, used three months; portable high frequency outfit and massage tables. Will consider any reasonable offer for all or any part of above. These are all practically new. Am specializing in other work and have no use for these things. Address 221, care of this office.





# The Battle Creek Method of Treating Cases of Drug Addiction

**Alcohol, Opium, Cocaine, Tobacco and Other Drug Habits**

The Battle Creek Sanitarium is not an inebriate asylum. Cases requiring physical restraint or likely to disturb other patients are not received. For a large class of intelligent persons who have through suffering become entangled in the toils of a drug habit and who are ready to co-operate with a rational effort to deliver them from the drug and from its effects the Battle Creek Sanitarium Method offers a rational, safe and remarkably comfortable means of relief and without publicity.

This is not a drug method. Drug methods often leave the patient's nervous system shattered and his condition so wretched that he is very liable soon to drift back into the old habit.

There are no tricks of hypnotism or "suggestion" in the Battle Creek Method. The rational and physiologic means employed not only remove the craving for the drug but deliver the patient from the pain or neurasthenic miseries to relieve which the drug was first used, and if faithfully employed finally reinstate the patient by removing the morbid effects resulting from the use of the drug.

A fuller account of the Battle Creek Sanitarium Method of treating drug addiction in its various forms will be sent on receipt of the attached coupon.

**The Battle Creek Sanitarium, Battle Creek, Mich.**

**Box 350**

**The  
SANITARIUM,  
Battle Creek,  
Michigan.**

Please send to the undersigned full information concerning the Battle Creek Method of treating cases of drug addiction.

Dr.....  
Street.....  
City.....  
State.....

## PUBLISHER'S DEPARTMENT

### CHICAGO GREAT WESTERN RAILWAY

For the American Medical Association meeting, which will be held in San Francisco, California, June 22nd to 25th, the Chicago Great Western railroad will have a through standard electric lighted steel sleeping-car from Minneapolis to Los Angeles, leaving Minneapolis at 1:30 P. M., June 15th, and arriving in Los Angeles at 2:40 P. M., Friday, the 18th.

The rate of \$63.85 applies via Kansas City thence the Santa Fe railway, returning from San Francisco through Ogden, Salt Lake, Colorado Springs, Denver, and Omaha. If you wish to return north through Portland or Seattle, thence via any of the northern lines, the rate would be \$74.45. If you desire to visit the Grand Canyon the side trip would be \$7.50 additional to the above rates. Both of these rates include free side trip to San Diego.

By leaving on this car it will give you a chance to visit Los Angeles and see the Exposition at San Diego before the opening of the meeting at San Francisco.

As travel will be very heavy at this time those expecting to go should make their berth reservations early.

### JORDAN SULPHUR SPRINGS AND MUD BATH SANITARIUM

This sanitarium is located but a short distance from the Twin Cities, being easily reached over the Omaha and St. Louis railroads. The institution is growing in popularity for its patients are well pleased with the help they have received. Diseases of the kidneys, stomach, and liver, and rheumatism are among the specialties for which they urge the use of the mud baths. Manager Leonard extends a cordial invitation to all physicians to visit and inspect the baths as guests of the company. Write them for booklet at Jordan, Minn.

### BATTLE CREEK SANITARIUM

Any reasonable pretext that encourages exercise among the patients is encouraged by the Battle Creek Sanitarium. Among the ingenious methods of luring the semi-invalid to the healthful out-of-doors, the Sanitarium maintains health gardens. These gardens are little squares of soil where patients may raise a crop of vegetables and a crop of health at the same time. Actual gardening is carried on under the direction of physical instructors who are present to see that the patients do not exercise injudiciously. This "getting back to the soil" wins the interest and co-operation of many patients who otherwise would remain indoors. As an aid to health-building, the health garden has many superior advantages.

### GLYCO-THYMOLINE FOR COLON FLUSHING

Inactivity of the colon, with its retention of fecal matter and consequent distention and interference with the work of the rectum, is a prime factor in the causation of hemorrhoids, constipation and, in the event of septic matter in the feces, auto-infection.

The rapid elimination of all septic matter, and the promotion of an aseptic condition of the intestinal canal is within the province of Glyco-Thymoline. One pint of a ten per cent solution at a temperature of 100° introduced well up into the colon will produce a quick evacuation without pain or discomfort. This, followed by three or four ounces of a twenty-five per cent solution at the same temperature, retained, will speedily restore to normal conditions by inducing exosmosis, relieving pain by its anesthetic property and promoting a general aseptic condition by its power of cleansing.

### BURNS

Not infrequently a bad burn gives considerable trouble and apparently defies all efforts to get it healed. The Lavis people have records of a number of cases where Lavis has been used as "a last resort" and where results have caused pronounced gratification.

Lavis contains zinc chloride in combination with essential oils, and it is very reasonable to suppose that a preparation of this character would be of value in cases of burns. It is certainly easily applied, merely moisten cotton with a 50 per cent solution and bind to the affected part.

It occurs to us that those who take early fishing trips should have along a bottle of Lavis to relieve the soreness of "sunburn." The Lavis company will send you a sample if you request it.

### THE LINCOLN RUBBER GLOVE

As the surgeon today is performing more and increasingly delicate operations, this article on the "Science of Making Surgeons' Rubber Gloves" will perhaps find willing readers.

Many contingencies enter into the making of a surgeon's glove, and it can be good or bad for many reasons.

Where the science of glove-making comes in is how to give the glove sufficient toughness and strength and at the same time keep it thin and even in texture and soft enough so that the normal surgical touch is not lost when the gloves are worn. Delicate operations demand the sensitive cuticle-like touch, as all well know, and a lifeless, heavy or bunglesome glove prevents the sensitive cuticle touch.

We illustrate the "Knuklfit" surgeons' glove as made by The Lincoln Rubber Co., Akron, Ohio. In their advertisement observe in the illustration the extra bulge on the knuckles of the glove. This is one of the secrets behind the "Knuklfit" glove which insures comfort and normal surgical touch by preventing tension at the finger tips.

Just as it is obvious that the joints are the largest part of the fingers, so it is obvious that it requires extra space at the knuckles to insure free action of the fingers.

When the fingers are closed an ordinary straight-fingered glove is certain to become tense over the joints and thus draw up and bind at the finger tips; that action is largely responsible for the "false" touch and the loss of the "normal" touch.

Of course the knuckle bulge is a patented feature of this glove, and it is comparatively new, but we understand that the "Knuklfit" has made friends with surgeons who have used it.

# THE JOURNAL-~~L~~ANCET

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## CORNEOSCLERAL TREPHINING: THE NEW OPERATION FOR THE RELIEF OF GLAUCOMA\*

BY H. A. BEAUBOUX, M. D.

ST. PAUL

I accepted the invitation to speak on this subject with great pleasure and eagerness as it has been my privilege to see, only a short time before, one of our confreres in the Twin Cities who had come from England, not to say India, to bring to our American profession the result of his painstaking study upon a most baffling and dreaded disease, namely, glaucoma; and it is Dr. R. H. Elliott's message that I wish to bring to you here today.

Although you are not ophthalmologists, and perhaps the majority of you may never be called upon to perform this operation, it is most important that your attention should be called to it, since it will be through you and your early diagnoses that your patients will, in a great measure, be directed to those who are competent to perform it, and thus receive the benefit derived therefrom.

Glaucoma, as you no doubt know, has been regarded as one of the hopeless diseases of mankind, and, in a measure can be compared with our treatment of cancer. Like the latter disease the patients have presented themselves too late to receive the full benefits of our best and recognized treatment for this condition.

Glaucoma in itself, which is nothing more or less than deficient filtration and circulation of intra-ocular fluids, which bring about increased intra-ocular pressure, manifests itself in several ways, the incipency of which can elude the casual observer, and indeed, at times, those limiting their practice to that branch of medicine.

Glaucoma may be divided into several classes, which, for the sake of brevity, we will call primary and secondary. The former appears in non-inflammatory and inflammatory forms, according to the course and onset of the disease. It was thought for this reason that the different methods of treatment should be applied, and many operations were devised, all of them more or less unsuccessful with the exception of simple primary glaucoma, for which, as you well know, the broad iridectomy of Graefe became famous; this, in a large number of cases, more or less permanently gives admirable results. It was in the study of these cases that La Grange, Herbert, and others ascertained that the benefit derived from this operation was in the permanent establishment of a filtering cicatrix. This fact being ascertained, new instruments and devices were from time to time brought before the profession to establish filtrating scars in and about the corneoscleral junction with the hope of keeping up a healthy equalization of the intra-ocular fluids, for, without it, as you well know, no sight can be ultimately preserved, owing to the secondary changes which take place in the eyeball, namely, pressure upon the optic nerve with subsequent atrophy, congestion of the ciliary body, smokiness of the cornea, and, according to its form, pain, pathological changes in the lens, iridocyclitis, and even pan-ophthalmitis and phthisis bulbæ, and not until then, in some cases, does the agonizing pain subside.

You will not wonder why ophthalmologists welcome with enthusiasm an operation which, in many ways simpler than any other so far pre-

\*Read at the 27th annual meeting of the North Dakota State Medical Association at Grand Forks, May 13 and 14, 1914.



sented, bids fair to reward the operator with a permanent result. As in cancer, however, the benefit of this operation lies with an early diagnosis of the disease and immediate operative relief. For this reason let me beg of you upon your return to your respective fields to take time to review minutely the etiology, pathology, and symptomatology of glaucoma. It will take your utmost care and observation to make an early diagnosis at best in some cases.

Those who will be called to assist you in the care of these cases need your earnest co-operation, for there is but little more glory in operating upon a blind eye, though it be for the relief of pain when the sight could have been preserved, than there is in conducting a post-mortem to verify your mistaken or correct diagnosis.

In calling your attention to the charts which are before you I wish to point out roughly the major steps of the operation as described by Dr. R. H. Elliott, whose experience, gained in the treatment of over 900 cases, warrants the attention of the most skeptical. A flap of conjunctiva triangular in shape, the apex about one centimeter away from the corneoscleral junction, is dissected on either side two-thirds of the distance toward the cornea, the apex lifted and inverted over the base and the latter dissected subconjunctivally with a sharp flat needle until the crescent of the anterior chamber is uncovered. The instrument which I hold in my hand, the small trephine, either one and one-half or two millimeters in diameter, is applied over the crescent, and a small button is removed. The iris which usually protrudes in the wound is picked up with a tiny pair of forceps and snipped off; the flap is replaced, either sutured or not as the case may demand; the patient kept in bed for a few days; and the operation is practically completed. This is, in a few words, the essence of this new simple and yet efficient operation for which we have waited so many years.

There are many points for the preparation of the cases before operation, also concerning the technic and after-treatment which time will not allow me to mention, and for which I will refer you to Dr. Elliott's most scientific and well-written monogram on the sclerocorneal trephining. This operation is, of course, being tried and criticized by eminent ophthalmologists; and though it may not be ultimately adopted by all and for all cases, the operation which brings the greatest good to the greatest number must be acknowledged the best. That it insures us permanent filtration and more nearly normal tension than any operation must be confessed at

this time. This is the aim of all our treatments and operations for the relief of this increased tension and its dangerous sequelæ, therefore, let time and skill in performing this operation dictate our final report on the general value for which its author has put himself on record before being too critical. My personal opinion is that for simple chronic glaucoma and other non-inflammatory conditions of hyper-tension it will give us more uniformly good results than iridectomy, which is today the operation par excellence, and will be the operation of choice. For the inflammatory forms I have my doubts as to its value. I firmly believe, however, that of all the operations proposed Elliott's seems to be the most practical and safe.

Before closing permit me to remind you, and I do so from the fact that I was most sadly reminded only a few days ago, that there are still among us medical men who use atropin, even with people of middle life, with the result being most disastrous, as in the case of the lady I have in mind who presented herself in my office only a few weeks ago with absolute glaucoma as a result of the instillation of atropin in her eyes for the relief of pain, terminating, I am sorry to say, in absolute blindness.

Let each one carry this picture home determined, though you may not be interested in ophthalmology, not to be responsible for blindness, either by failing to diagnose incipient glaucoma cases or failure to prescribe, if you prescribe at all, proper and safe medicines when treating diseases of the eyes.

#### DISCUSSION

DR. G. GOLSETH (Jamestown): I enjoyed listening to this paper, and I want to emphasize what Dr. Beaudoux says about the diagnosis of glaucoma and the instillation of atropin. There seems to be a tendency when there is a red eye to use atropin. I think that is one of the last drugs that should be used, unless the doctor is very certain there does not exist any glaucoma. As the doctor said, it is nearly impossible to make a diagnosis, but this is something we cannot lay too much emphasis on, being careful in the use of atropin, especially in people over forty.

In regard to the operation: My experience has been so very limited that I cannot speak with any degree of accuracy. It is an operation which is undoubtedly the easiest operation to perform where you have a very shallow anterior chamber.

I am very sorry to learn from late literature that there have been a number of infections from this operation. Dr. Beaudoux did not bring that out, but of course that is a very unfortunate thing because it is a great setback to the operation. Another thing: This operation may reduce the tension so much as to produce detachment of the retina. I have seen some late literature that reports a few such cases.

## PELLAGRA, WITH REPORT OF CASES\*

BY G. S. ADAMS, M. D., AND F. V. WILLHITE, M. D.

YANKTON, SOUTH DAKOTA

## IN TWO PARTS—PART II

*Treatment.*—Of the treatment we shall have but little to say. There is no specific, and until the cause of pellagra is known the treatment will very likely be largely empirical and based on general principles.

For the sake of brevity, we shall divide it into hygienic, dietetic, and medicinal; and of the first two we will only say that they are to be applied here on the same broad, general principles as would be applied in the treatment of any similar toxic and exhaustive process. The medicinal treatment, being non-specific, must be largely symptomatic. Many forms of treatment and many agents have been used, but none of them has proven universally satisfactory.

The substance which has received widest usage, and is most often recommended by writers and clinicians, is arsenic. It is given in many forms,—as Fowler's solution, beginning with five minims three times daily, gradually increasing the dose to the limit of physiological tolerance; or sodium cacodylate  $\frac{3}{4}$  to 5 or 6 grains hypodermically every two to six days, or in the form of atoxyl or sodium arseniate, 3 grains hypodermically. While some claim to have effected cures with this substance, and others to have produced marked improvement, many insist that it is of no value at all.

The diarrhea is perhaps best treated by dietetic measures and colonic flushings. Mouth-washes afford some relief to the stomatitis, while zinc oxide ointment to the skin during the erythematous stage sometimes adds to the patient's comfort. The insomnia, which is distressing to the patient, is best relieved by veronal in 5 to 10 grain doses, or some other hypnotic which can be given over prolonged periods. Hydrotherapy has been recommended, and where it can be applied is often useful as a general measure.

Whatever the treatment used, it is only temporizing until science can find the cause, and thus make clear the way to relief for those who suffer from the malady.

## CASES

CASE 1.—Johanna M. (3,838); female; aged 53; married; 12 children; occupation, housewife; nativity, Finland; residence, Butte County, S. D.; was admitted to the State Hospital, February 8, 1913, with a history of four previous attacks of insanity; in 1891, 1898, 1901, and 1908. The onset of the present attack began

several weeks prior to admission, with extreme depression, which has been steadily progressing. Her appearance was dull and stupid; conversation delayed; and she was fearful of personal safety and impending danger. She was usually quiet; but at times agitated; had a tendency to suicide; slept poorly, and had very little appetite; was poorly nourished, with a markedly reduced vitality. Her temperature was normal. She had a "dermatitis" on the dorsum of both hands. There was present a severe stomatitis. Her tongue was very red, and the edges glazed and smooth. There was a marked diarrhea; stools thin, yellowish, and foul-smelling.

During the spring and summer the diarrhea persisted and seemed uncontrollable. The stomatitis continued and involved all the mucous surfaces. The tongue had a bright cherry-red color, and was denuded of its epithelium along the edges. She drooled continuously from the mouth. There was a marked gastritis; she vomited a great deal, and could retain nothing but milk. The skin on the backs of the hands scaled off, leaving the skin somewhat atrophied and discolored.

During the early fall the diarrhea and stomatitis were much improved, but the skin lesions again became more acutely inflamed.

At the present time all the symptoms have improved, although she still continues mentally disturbed.

CASE 2.—Herbert P. (3,208); aged 52; married; nativity, England; occupation, laborer; admitted September 5, 1909, from Lawrence County, S. D.; was an inmate of the Lawrence County Poor-House for several years prior to his admission. There was a history of alcoholism, and he was quite profoundly demented. Nothing of interest in his previous history bearing on the present trouble.

The lesions on his hands were first noticed early in August. His previous health had been fairly good until July, when it was noticed that he was more dull and stupid than usual. He had a moderate looseness of the bowels about this time; appetite was poor; and there was a noticeable loss of weight and strength. There was a moderate stomatitis, gums swollen, breath fetid, tongue cherry-red, and smooth and denuded of its epithelium at the edges and tip. His mouth was sore, and he complained of his tongue being swollen and too big for his mouth. The erythema on the dorsum of the hands was typical; quite symmetrical, sharply defined, red, the skin slightly swollen, with some burning and itching.

Early in September he became quite restless and mentally disturbed. His sleep was affected, and on several occasions he was noisy at night. The erythema has gradually subsided, the epithelium scaled off, leaving a smooth, shiny, plum-color to the skin. The stomatitis improved; the tongue and mouth were less inflamed; his appetite increased with a consequent gain in weight, and the diarrhea became less troublesome.

About the first of December the diarrhea again became severe; and, in spite of all treatment, the patient died of exhaustion January 10, 1914.

The post-mortem findings by Dr. Eyman, forty hours after death, are as follows:

1. *Gross Anatomy.*—Body, medium build; greatly emaciated; skin, pale, atrophic, dorsum of both hands. Teeth mostly missing; mucous membrane of mouth, very pale; eyes, sunken; hair, scant; muscles, atrophied; rigor mortis, marked; no panniculus.



Thorax: Few small glands scattered over anterior mediastinum, size of pea to hazel-nut; pericardium,—a few cubic centimeters of clear fluid; a few large plaques (1 inch in diameter) on visceral surface. Heart weighs 25 gms.; in diastole; soft and flabby; musculature, thin; mitral and tricuspid valves, normal; likewise aorta and aortic valves. Right lung weighs 950 gms.; entire lung filled with large calcareous nodules with exception of anterior border of lower lobe; thick adhesions over entire lung. Left lung weighs 998 gms.; same general appearance as right.

Abdomen: Peritoneum,—whitish plaques on visceral peritoneum; otherwise normal. Spleen weighs 310 gms.; shows post-mortem changes. Left kidney weighs 100 gms.; small white plaques on surface; capsule, adherent; cuts with increased resistance; cortical substance, decreased. Right kidney weighs 90 gms.; same as left. Large intestine,—descending colon small and contracted; cecum and transverse colon, practically normal, but with diminished musculature; ileum, very much thinned; small white round and irregular plaques scattered over entire intestinal surface. Liver weighs 1,665 gms.; extends three fingers below costal margin; marked imprint from ribs; surface, negative; cuts easily; marked grayish mottling; lobules, indistinct. Mesenteric lymph-nodes, enlarged and indurated; retroperitoneal lymph-nodes, enlarged and black.

2. *Microscopic Anatomy.*—Lung: Many areas of necrosis surrounded with round, epithelioid, and spindle-celled fibrous connective-tissue cells. Much old fibrous connective tissue. Remaining lung shows merely passive congestion.

Heart: Slight connective tissue infiltration.

Liver: Marked passive congestion with slight round-celled infiltration around blood-vessels.

Kidneys: Marked passive congestion; few small hemorrhages; round and spindle-celled fibrous connective-tissue infiltration throughout.

Adrenals: Marked passive congestion.

Spleen: Normal.

Stomach: Muscular coats thinned; round-celled infiltration of mucosa.

Intestines: Muscular coats thinned.

Pancreas: Passive congestion.

Mediastinal lymph-nodes: Areas of necrosis surrounded with old connective tissue, round and epithelioid cells; marked infiltration with connective tissue.

CASE 3.—George N. (1,459); married; aged 51; nativity, Wisconsin; occupation, laborer; former residence, Beadle County, S. D.; a patient in the State Hospital since October 17, 1895.

There is a history of alcoholism; mental diagnosis at the time of admission, alcoholic psychosis. At the present time he is quite profoundly demented. Our attention was first drawn to this patient early in August, after our interest in pellagra was aroused. The patient had previously enjoyed a state of fair physical health; but for two or three months past it was noticed that he was duller and more stupid than usual; would sit for hours at a time, with his head on his breast, drooling at the mouth. There was a looseness of the bowels, but no persistent diarrhea. His appetite was poor, he had lost some in weight, and there was present a moderate stomatitis. His tongue was smooth and bright-red, and denuded of epithelium at the tip.

The skin lesions were pronounced and symmetrical, and had the appearance of a severe sunburn, puffy, and red. The line of demarkation was not so noticeable as in some of the other cases. By the middle of September, the inflammation had subsided, and the skin appeared thickened, crusty, and scaling, with a very marked dirty-brown color.

All the symptoms have gradually subsided until

at the present time there is little evidence of the disease, except the bronzing of the hands, and a red, smooth tongue.

CASE 4.—Edward J. (3,498); aged 50; single; nativity, Norway; occupation, laborer; former residence, Lincoln County, S. D.; transferred from the penitentiary March 23, 1911.

The skin lesions were first noticed in July, and consisted of a dermatitis affecting the dorsum of the hands and forearms, symmetrical in location, with sharply defined border. The color and general characteristics were quite typical. For some weeks prior to the discovery of the skin eruption, he had suffered from a severe diarrhea, which necessitated his being kept in bed. Coincident with the diarrhea was a marked gastritis. There was a loss of appetite, and much gastric distress and nausea. There was a distinct loss of weight, and he became quite depressed mentally. There was present a moderate stomatitis.

During the fall, the acute symptoms gradually subsided, his general condition improved greatly, and during the winter there was little evidence of the trouble besides a roughness of the skin over the site of the lesions and a noticeable bronzing.

Early in April the skin over the dorsum of the hands and forearms again became acutely inflamed, but is subsiding at the present time. This recurrence has not yet been accompanied by any pronounced gastric or nervous symptoms.

CASE 5.—Ferdinand S. (2,672); single; aged 57; nativity, Germany; occupation, farmer; former residence, Potter County, S. D.; admitted February 21, 1906. History of mental derangement for six or seven years prior to his admission; was a patient in one of the Washington State Hospitals for three years. At the time of admission he was considerably demented, although very delusional, and suffered from rather distressing hallucinations. His physical health had been reasonably good until the past year; the mental condition continued unchanged, with the exception of a slowly progressing dementia.

During the past year he has been rather feeble, suffering from frequent intermittent attacks of diarrhea; was in bed much of the time during the past summer because of the diarrhea and general weakness. In June it was noticed that he was suffering from a peculiar skin eruption, affecting the backs of both hands; but, inasmuch as he had been out of doors in the sun occasionally, no significance was attached to it. However, in July, a tentative diagnosis of pellagra was made in the case by Dr. Eyman of the hospital staff; and he was placed under close observation. At this time, the eruption was symmetrical on the backs of both hands, and extended onto the wrists. It resembled, very much, ordinary sunburn. Subsequently, it became quite indurated and darker in color, and the superficial layers of the epidermis exfoliated, leaving the areas distinctly pigmented. There was also present, at the outer canthus of the left eye, a skin eruption about one inch in diameter, in every way resembling the lesions on the hands. It was not present on the right side.

There was a distinct stomatitis present—the mucous membrane of the mouth was very red. The tongue was smooth and "bald," and the angles of the mouth cracked and fissured.

The diarrhea continued distressing, the stools being thin, yellowish in color, and very offensive. Muscular weakness was marked. He often suffered from attacks of vertigo, and would occasionally reel and fall. Mental depression was pronounced, and he was very delusional, complaining that the meat was poisoned, and was the cause of his illness.



All these symptoms persisted, with occasional remission, during the summer and early fall. When he was up and about and out of doors in the sun, it was noticed that he was distinctly worse. The patient soon learned this, avoided the direct sunlight, and wore gloves when he was out of doors.

In spite of all treatment, the patient gradually became weaker, and died October 8th.

The post-mortem findings by Dr. Willhite forty-eight hours after death are as follows:

1. *Gross Anatomy*.—Body: Medium build; greatly emaciated. The skin, pale and drawn tightly over the skeleton. Dorsal surfaces of both hands rough, bronzed, and fissured. Teeth, badly decayed; gums, blue and swollen; the mucous membrane of the mouth very pale.

Brain: Dura adherent along margins of hemispheres; meningeal vessels slightly injected; choroid plexus markedly cystic.

Thorax: Thoracic organs normal in position, and show no anomalies. Pericardium, smooth and no adhesions. Heart,—weighs 260 grams; soft; flabby; and collapses when supported by apex; contains considerable amount of superficial fat; musculature, very thin and pale. Left lung weighs 700 grams; recent adhesions along posterior border and apices; crepitations throughout; slightly edematous; hypostasis in lower lobe; lobules distinct; cuts easily. Right lung is very similar, except for a few small nodules in apex.

Abdomen: Peritoneum is smooth and very pale. Spleen weighs 160 grams; normal in appearance; cuts easily; contains a few small hemorrhagic areas. Left adrenal shows nothing abnormal on gross appearance. Left kidney weighs 120 grams; few superficial cysts; cuts easily; cortex thin. Right kidney, practically same as left. Large intestine presents considerable atrophy of mucous coat; numerous small hemorrhagic areas scattered throughout the intestine. Small intestine, collapsed; contains considerable amount of bile-stained material; marked atrophy of the mucous and muscular coat. Duodenum and bile passages are negative. Stomach, collapsed; hour-glass constriction; pylorus, negative; vessels, moderately engorged; atrophic gastritis. Liver weighs 1,460 grams; mottled appearance; cuts with increased resistance; cut-surface, rough and granular; lobular markings are absent; contains much fibrous tissue, and has a fatty appearance.

2. *Microscopic Anatomy*.—Brain: The brain structures exhibit chiefly degenerative changes. The pyramidal cells are small and shrunken; have retracted from surrounding structures; stain poorly; the nuclei, while actually smaller than normal, are large relatively, occupying the greater part of the cell, are very granular, and stain deeply. The reticular structures are thinned, and present scattered areas of round-celled infiltration. The blood vessels are extremely thin, and are considerably congested. A section through the internal capsule and lenticular body presents much the same appearance as above, except that here the pyramidal cells are not so atrophic, but are more granular and deeply staining, while the nuclei are invariably placed to the peripheral portion of the cell. In the medulla the conduction-paths are infiltrated with neuroglial tissue, while in some areas the tracts seem entirely interrupted by such tissue. Everywhere the blood-vessels are thin and engorged.

Heart muscle: Well-marked fibrous myocarditis; the entire muscle is everywhere infiltrated with fibrous tissue, separating, not only the bundles, but the various fibres themselves. Many fibres seem fractured transversely. The nucleus is very granular and deeply staining. The cell body stains not so well and has a

glittering stain, due to the fibrous tissue; much hemorrhagic extravasation.

Lung: No changes of any import present in the lungs. The alveolar walls seem very thin and denuded of their epithelium, and musculature of the bronchi seems thinner than normal. Some areas show much round-celled infiltration.

Kidney: This organ presents an acute hemorrhagic extravasation, which has wrought much destruction upon the renal structures, especially the tubules between which the blood has infiltrated, separating them, tearing them across, or obstructing their lumen, if not entirely destroying them. The kidney also shows considerable fibrous infiltration, and the blood-vessels here seem to be thickened rather than thinned.

Liver: The liver also shows much hemorrhagic infiltration of the lobules. Considerable fibrous tissue is found between the cell-columns, and the liver-cells are undergoing a pressure-atrophy; slight amount of fatty infiltration.

Intestine: The most important change here is in the muscular coat, which has undergone very great atrophy, becoming very thin. The muscular tissue has largely given way to fibrous tissue. The mucosa seems to be undergoing a mild inflammatory change, manifested chiefly by congestion and round-celled infiltration. The intestinal glands are slightly swollen and succulent. The superficial epithelium of the mucous membrane is extensively denuded.

CASE 6.—Helen B.: (3,860); aged 55; married; seven children; nativity, Canada; occupation, housewife; former residence, Meade County, S. D.; admitted to the State Hospital, March 28, 1913.

The first symptoms of her mental derangement were noticed about three weeks previous to her commitment, and consisted of general malaise, sleeplessness, and religious excitement. At the time of her admission, she was very greatly weakened physically.

During the early summer a peculiar, symmetrical eruption of the skin was noticed on the backs of both hands, extending on to the wrists. The margins were sharp and well defined; the color a bright-red at first, later appearing bluish. The epidermis exfoliated, leaving the skin rough and discolored. At the same time, there was also a similar eruption on the face, over the nose and extending onto the cheeks.

There was present a mild stomatitis—the lips and gums were a bright-red color. The tongue was swollen, with edges markedly glazed. Her appetite was poor. She had some looseness of the bowels, but no persistent diarrhea. This looseness, however, continued most of the past summer.

During the early fall, the eruption on the hands and face disappeared; the stomatitis and diarrhea improved, and there was little evidence of the disease. The mental disturbance continues, and physically she is losing.

CASE 7.—John R. (3,536); single; aged 45; nativity, Ohio; occupation, farmer; former residence, Lawrence County, S. D.; admitted June 3, 1911.

This patient was an inmate of the hospital for nine months in 1901. There is a history of mental derangement and enfeeblement of twenty years' standing. There is also a definite history of alcoholism; nothing of interest or direct bearing on the present condition, with the exception of a severe lobar pneumonia, with right lung involvement in January, 1913. He made a slow but uneventful recovery. Since his illness he has been unusually dull and listless.

About the last of June, 1913, we were able to interest him in outdoor employment; and he was assigned to one of the mechanics at work on a new building in course of construction. In spite of the fact that he wore gloves while at work, he developed an inflamma-

tion of the backs of the hands, resembling, in every way, sunburn. This was first apparent the last of July, at which time he also complained of a severe diarrhea, cramp-like pains in the abdomen, sore mouth and tongue and much mental depression. His appetite was poor, and there was a considerable loss in weight and strength. He complained of various paresthesias, and expressed himself as feeling "numb and dead all over." His tongue was smooth and bright-red, and denuded of its epithelium at the edges and tip. This he attributed to the quality of tobacco which he had been using. The erythema was confined to the backs of the hands, and extended only to the wrists. It was markedly symmetrical, red, and puffy. This inflammation gradually subsided, and the epithelium scaled off, in coarse and fine scales, and has left the skin distinctly bronzed. The other symptoms have all disappeared, with the exception of the red, smooth tongue, and a general dullness and apathy.

#### DISCUSSION

DR. F. M. BALDWIN (Redfield): This excellent paper gives us a very good idea of a comparatively rare and unusual disease. Pellagra, while it has been known for some two hundred years, is a disease which American physicians have been slow to recognize; and it is only within the last ten years that undoubted cases have been diagnosed as such in America. The fact that there are at present seven cases in our State Hospital for the insane indicates how extensive the disease is; and as nearly all cases at the insane institutions first come under the care of the home physician we may expect to meet pellagra in private practice.

Some years ago it was my privilege to have under my care a patient in whom the diagnosis of pellagra seemed to be well founded, though not conforming in all respects to the typical case. One of the symptoms usually present was absent, i.e., diarrhea. Fortunately, I was permitted to do a post mortem, and, on opening the abdomen, I found evidence of a previous attack of appendicitis, though the patient gave no history of such trouble. There were extensive adhesions around the appendix, one of the bands passing across the small bowel, producing a partial obstruction. Constipation had been exceptionally severe for some years previous to the appearance of the skin lesions.

As I had an opportunity to observe this case from the onset it might be of interest to describe it briefly. After a period of some months during which time the patient had complained of feeling depressed and of tiring easily, the skin about the temples became slightly discolored. The discoloration was perfectly symmetrical, and involved the temples, a portion of the forehead and cheek, and a little later appeared on the backs of the hands and on the lower third of the dorsal surface of the forearms. The bilateral symmetry was as marked here as on the face. The affected area gradually changed in color from a tawny, slightly greenish shade to the deep-red seen in severe sunburn. Large blebs then formed over the whole surface, followed by peeling of the epidermis and crust-formation. This slowly cleared, leaving a dried copper-colored surface, while death speedily followed from progressive asthenia. The time elapsing between the first appearance of the eruption and the fatal termination was about four months.

Most observers agree that pellagra is the product of a toxemia. In this particular case there would seem to be a direct cause in the occlusion produced by the partial obstruction.

DR. F. A. SPAFFORD (Flandreau): It was my good fortune to be in Yankton last winter some time, and I do not know of a more instructive clinic that I ever attended than the little clinic that Dr. Willhite and his brother, who was among the first to discover pellagra in Cook county, gave me that day when I was there for the purpose of seeing Dr. Mead when he was sick. It was one of the most instructive clinics I have ever seen or attended, and particularly along the line we have heard so much about today and at other times, and yet have seen very little. I am satisfied that every general practitioner is having cases of pellagra occasionally in his practice; and I think it would be well, if any of you are in Yankton, to go to the hospital, because Dr. Willhite will show you some typical cases of this disease.

DR. H. M. FINNERUD (Watertown): I have only one or two thoughts to offer in connection with this paper. The first is that in cases of skin affections, where you are first in doubt as to the nature and kind of case which you have before you, you should refer it to a bacteriologist. If he finds no bacteria of any kind and you find the symptoms of pellagra, then it will be safe to adhere to the diagnosis of pellagra, but where the symptoms are very obscure, then it is good practice to refer such a case or cases to a specialist, who can make a chemical and microscopic examination. This will serve a double purpose, because it would lead to more progress in medicine than we are making today. The general practitioner should be educated along these lines, and should guard himself against fallacious diagnoses, which we know have been, and are being, made in connection with this disease.

DR. WILLHITE (closing): A feature of this disease which is most important to the profession is the discovery of the cause of pellagra, for upon its determination depends the prevention of the disease, its rational treatment, and the final solution of the problem. Great controversy regarding the disease has revolved around the question of etiology. A very large number of men who have studied the disease say that it has been known for nearly two hundred years, and that the disease was in some way connected with corn as the causative factor. Whether it is due to a lack of the nutritive element in corn, or whether it is due to some protozoal or bacterial agent developing upon the spoiled corn, or the elaboration of some toxin by these in the body, has been a matter which they have discussed amongst themselves. But recently a great many men have come to believe that the cause must be looked for elsewhere, and already such a search has begun, and it engages many distinguished followers.

In the beginning of the discussion of every new problem much is said and written before certain conclusions come to be generally accepted. The Zeists have had something over one hundred and fifty years to establish their theory and have failed to do so. The disease has so many of the characteristics which are common to the infectious diseases in general, and those which are transmitted by carriers in particular, that many insects have already become the subject of careful investigation. But the cause has not yet been found. The cases are multiplying rapidly and the disease is spreading over a wide territory in a surprisingly rapid way, and pellagra is very rapidly becoming an American problem.



# SUBSTITUTE OPERATIONS FOR THE MORE RADICAL SURGICAL WORK ADVISED BY MR. LANE IN INTESTINAL STASIS\*

BY ARTHUR E. BENJAMIN, M. D.

MINNEAPOLIS

## IN TWO PARTS—PART I

Patients suffering with intestinal stasis are generally very annoying to physicians because of their acknowledged inability to cope with the manifold symptoms of the disease, and because of the present uncertainty of the best mode of treatment.

The symptoms of the disease now recognized as intestinal stasis, have been misinterpreted and

sons for the multiplicity of the symptoms complained of.

Unquestionably, intestinal stasis may occur in children; but its causes in later life are often due to habits of indiscretion in diet and to unhy-



Membranous pericolicitis with Lane's kink. Pronounced symptoms of intestinal stasis.



Double barrel shotgun deformity of colon; appendix included in membrane. (Pilcher.)

often characterized, in the past, as stomach trouble, liver complaint, sick headache, dyspepsia, biliousness, hyperacidity, nervous dyspepsia, neurasthenia, etc. All or some of these symptoms may have been present, but these terms do not as thoroughly cover the phenomena present as the term *intestinal stasis*. It at once suggests to the mind some underlying factor responsible for the condition, and significant rea-

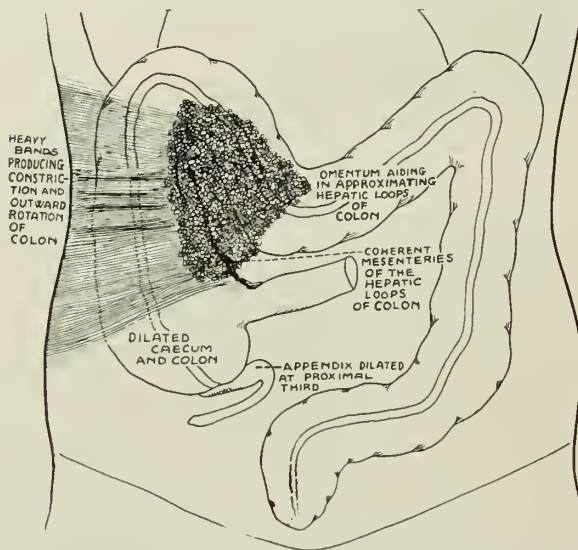
gienic modes of living founded in childhood. In a child who is proportionately well developed and who is given pure suitable food, with all parts of the body kept free of infection,—such as the teeth, tonsils, respiratory apparatus, sinuses, etc.,—and active daily general exercise kept up, the muscles of the body, including the abdominal and the intestinal, will keep up the required tone so as to take care of the digestion and elimination of waste products. No overloading of any

\*Read before the Western Surgical Association, Denver, Colorado, December 18 and 19, 1914.



portion of the colon nor sagging is likely to occur, nor will stasis develop during life.

Metchnikoff attributes all the consequences of intestinal toxemia to stagnation in the large intestine. He says: "The contents of the ileum are impeded in the progress through the ileocecal valve on account of the filled cecum. There is even a regurgitation or reflux; and bacteria which the small bowel is unused to, enter. The protecting wall of the infected stream is unable to prevent this systemic damage due to the presence in this part of the alimentary canal of bacteria whose habitat is the colon; and this is the evil consequences of stasis. So long as these bacilli remain in the colon, no great systemic



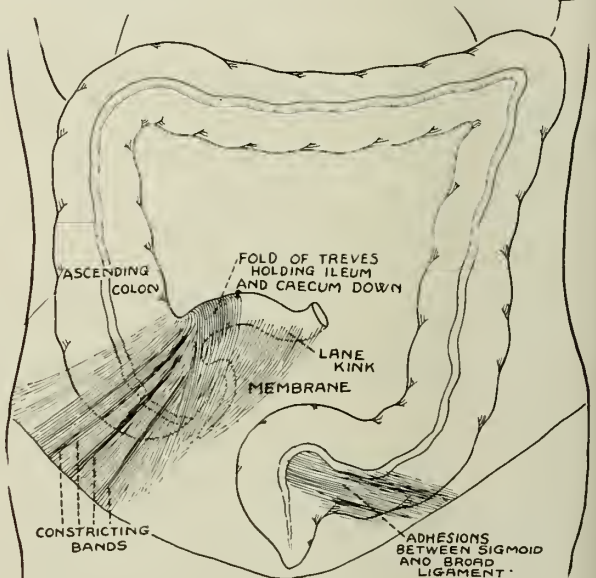
Case of pronounced hepatic kink. Intestinal stasis. Union of transverse and ascending colons. Bowel liberated. Cured.

harm results; but the evil is soon felt when the reflux occurs."

Even a dilated duodenum can result from the contents of the bowel damming back into this portion of the alimentary canal; and this part of the bowel may be invaded with microbes from that portion of the colon where the stasis begins. The first part of the duodenum is where ulcer is usually found, and is the one mainly affected. Disease of the biliary and pancreatic ducts may be an associated complication. This infection of the duodenum may result in pyloric spasm with consequent gastric retention and dilatation, owing to the inability of this sac to empty itself before the next meal. A chronic prolapse and dilatation are a sequence, and when the transverse colon is loaded, it may be pulled out of place as well.

When the intestinal contents are delayed too long in a distended congested loop of intestine, the bacteria have an opportunity to escape into the lymphatic or the blood-stream, or to migrate through the thinned-out intestinal wall, resulting in a low-grade peritonitis with the production of adventitious bands, which may be nature's method of limiting the destruction by endeavoring to confine the infection to certain areas, but which, in reality, result in attaching contiguous loops of intestine, as the ascending and transverse colon, making a distinct kink so often seen by x-ray and at operation.

This membrane and adventitious bands are



Membranous pericolicitis with stasis. Bands severed, raw surfaces covered. Cured.

the natural result of the reaction of the tissue to infection, as noticed in a similar membrane produced in the presence of diseased tubes, ovaries, or any infected organ within the abdomen surrounded by intestinal coils. These bands therefore constrict the colon in sections still more, lessening the caliber of the bowel and furthering the evil consequences. That such conditions do exist, all operators of experience can testify.

An intestine so crippled and limited in its action sooner or later shares the fate of other tissues of the body due to under-nutrition and over-toxicity.

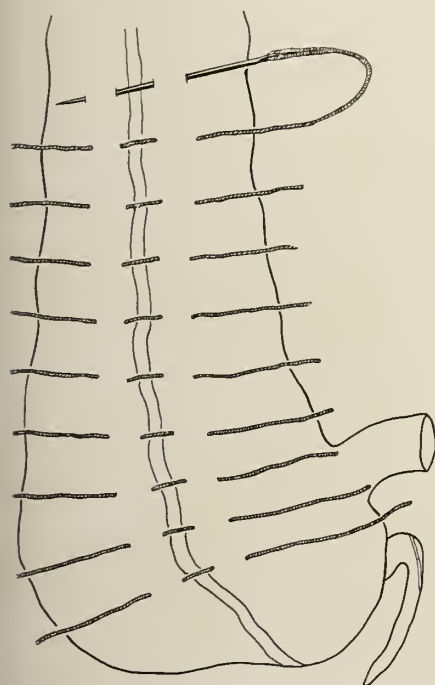
It is therefore further weakened, and is unable to propel the contents onward, greater destruction resulting, as noticed often in the dilated cecum and colon. Loss of muscle-tone or even

degeneration of the walls of the bowel itself is a natural consequence. A low-grade inflammation of the mucosa or a pronounced colitis is a natural sequence in certain cases.

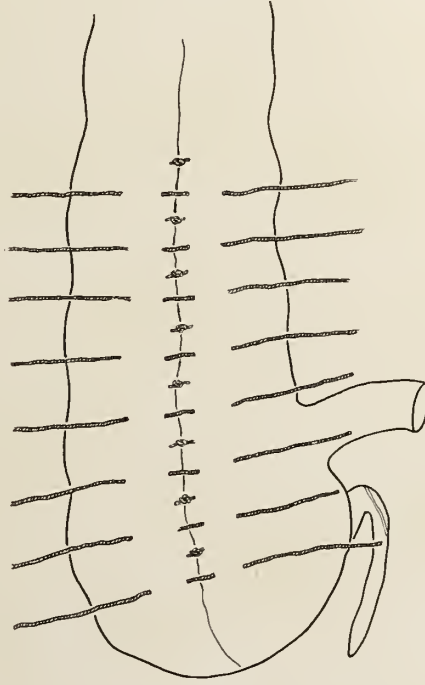
Surgeons differ in their opinion about the causes of membranous pericolicitis. Most of them believe that these bands are of a congenital origin; but at sometime in the life of the patient affected with intestinal stasis, these bands, which are present along the cecum, terminal end of the ileum, or ascending colon or sigmoid, become significant, because they interfere with the normal peristalsis of the bowel, act as inhibitors of the normal passage of the fecal contents, and

were that the parietocolic fold of Jonnesco is a reduplication of the fold of peritoneum, found during fetal and post-natal life, and that this fold often fuses with the fold of Treves, and that the genito-mesenteric fold of Reid bears the same relationship to Lane's kink that the pericolic membrane bears to possible kinks of the ascending colon. The committee was not ready to report what caused the changes in the pericolic membrane.

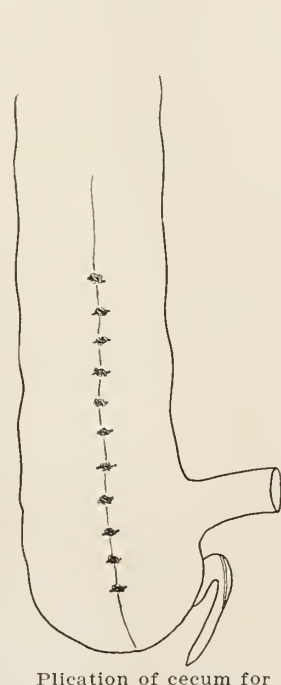
Baslowe believes that infections of the intestinal contents are "primary factors of greatest importance" in connection with toxemia of the alimentary tract, and the reason for failure of



Plication of cecum for dilatation.  
First row of stitches.



Plication of cecum for dilatation.  
Second row of stitches.



Plication of cecum for dilatation.  
Last row of stitches.

result in stasis and all the multiplicity of symptoms connected therewith.

Sorrell believes that bands, kinks, and membranes cause intestinal stasis.

These bands, which assist in producing obstruction of the large bowel and consequent stasis in the small bowel, are variously named by authors who first especially called the profession's attention to them.

Drs. Daniel Eisendrath and E. W. Schnoor, of Chicago, as well as Dr. Eastman, of Indianapolis, last year reported to this Association the findings of a committee appointed a year previously to determine the significance of these various bands existing in the abdomen and pelvis. The conclusions arrived at by the committee

operations for intestinal stasis, is the fact that surgeons are unable to successfully prevent the re-infection of the alimentary canal after operation. This infection begins in early life, and is gradually increased as time goes on. The constant resorption of bacterial products affects the tissues nearest to them, namely, the walls of the bowel. This results in changes in the secretions of the pancreas, intestines, liver, and stomach, with a weakened musculature of the bowel and degeneration of the sympathetic fibers. The dilatation may be more manifest in some areas than in others. Resistance of the gut-wall is overcome, bacteria gaining entrance into the lymphatics or blood-stream organs.

Daniel particularly believes that the forma-

tion of bands, constrictions, and membrane is due to local peritonitis, resulting from bacterial activity in and around the intestines. This bacterial invasion of the tissues is evidently from the mucosa. He also believes that, if the origin of the infection is removed, namely, inflammation within the alimentary canal, stasis will disappear. This seems quite rational, but when thick bands as a result form and constrict the

firm and strong, and the upper cavity is made more capacious in long, deep breathing.

Hepatic and splenic flexure, adhesions to gall-bladder, duodenal ulcer, perforating gastric ulcer, or duodenal adhesions or kinks or bands, or obstruction to or along any portion of the colon, sigmoid, rectum, or anus, or sphincter ani, or actual organic obstruction of rectum or an habitual neglect to heed Nature's call for evacu-



Prolapsed stomach and transverse colon with pronounced symptoms of intestinal stasis. Corrected by Rovsing operation. Satisfactory results.

colon, these bands become of primary importance, and stasis will persist as long as they interfere with the peristalsis of the bowel.

Goldthwaite believes that the poise of the individual has much to do with the position of the stomach and colon. That this is so I firmly believe, for we frequently notice people who stand and sit incorrectly, suffering from this trouble. By standing and sitting correctly the stomach and intestines are not crowded together. Greater space is permitted in the upper abdominal cavity when the lower abdominal muscles are

ation of the bowel, may eventually bring about stasis.

James T. Case has shown that the ileocecal valve in human beings is so incompetent at times as to allow the return of the colon-contents into the ileum; that, in his opinion as well as in that of Dr. Kellogg, many cases of intestinal stasis are due to the fact that this valve is very weak and that, when this valve acts normally, there is not the reflux into the ileum from the colon, and, therefore, there will not be the absorption from the small bowel of infectious

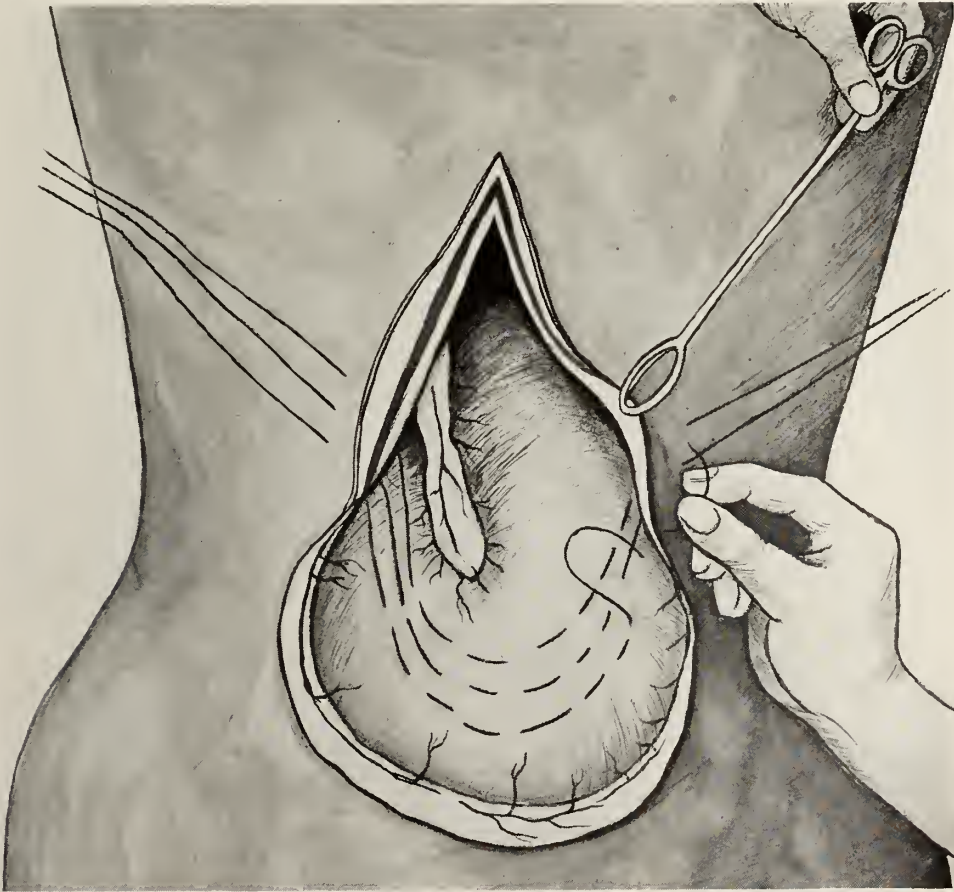


micro-organisms that otherwise would work backward.

The tendency for the bowel-contents to pass onward through the various divisions of the alimentary canal in the normal limit of time, is the rule in a healthy and normal individual; and if there is no hindrance, either from motor insufficiency or from lack of abdominal and intestinal muscle-tone, or from acute angulations,

of experiments or investigations to prove this theory for intestinal stasis. In fact, I believe that an incompetent ileocecal valve is the result of intestinal stasis, and not the cause.

It is true that we may operate upon this portion of the intestinal tract and so re-arrange the valvular barriers, which will for a time at least prevent the reflux of the contents of the ileum from the colon, but how long will such re-ar-



Elevation of transverse colon, sutured in position.

flexures, or constricting bands, to the onward movement of the intestinal contents, no stasis occurs, unless from neglectful habits the colon becomes loaded and the flow of the contents of the ileum is impeded. When stasis does occur, a backward or reverse peristalsis can develop, necessarily resulting in a weakening of all barriers which normally prevent this backward flow. The ileocecal valve, in consequence, also suffers and becomes incompetent.

I do not think that we can attribute to this valve much, if any, congenital incompetency; at least it is almost impossible to conduct any series

of experiments or investigations to prove this theory for intestinal stasis. In fact, I believe that an incompetent ileocecal valve is the result of intestinal stasis, and not the cause. It is true that we may operate upon this portion of the intestinal tract and so re-arrange the valvular barriers, which will for a time at least prevent the reflux of the contents of the ileum from the colon, but how long will such re-arrangement of the structures act and remain competent to prevent this reflux in case the primary cause or underlying factors are not in some manner corrected or overcome? We must assist the whole mechanism. There must be a removal or correction of any mechanical barriers, such as kinks, bands, or angulations (the latter occur occasionally), due to a general visceroptosis or gastrocoloptosis, and finally assist the patient in building up all the correlated forces which favor regular normal removal of intestinal waste-products.

*Treatment.*—The diagnosis of chronic intes-

tinal stasis can be suspected from the clinical symptoms; but the definite cause and location of the stasis can be determined only by means of the Röntgen rays or by a rather extensive exploratory operation.

In each case of troublesome dyspepsia or intestinal and gastric disturbances, we should make a series of screen examinations by giving bismuth by mouth, marking the time necessary for its passage onward and through the various segments of the alimentary canal.

A distention of the colon by bismuth enemata will show the size and possible kinks of the colon, cecum, or adhesions. Dr. Payre, of Leipzig, during my visit this summer demonstrated an ingenious method devised by him for determining intestinal adhesions by the use of a manganese and iron substance, which he injects into the colon or has the patient take. When located by the x-ray in certain portions of the alimentary canal, a powerful magnet placed over the abdomen pulls the intestine up against the abdominal wall, and where there is a pull and pain adhesions are suspected, which interfere with the normal peristalsis of the bowel. Subsequent operations often revealed these adhesions and bands.

When symptoms of intestinal stasis are discovered, proper medical, mechanical, dietetic, and hygienic methods should be at once instituted to overcome the trouble if possible, such as general and special enemas, abdominal massage, encouraging the patient to stand and sit correctly, and to choose clean, plain, nourishing food, used at more frequent intervals and in less quantities, to eradicate all complicating infections, and the use of intestinal antiseptics, if necessary.

But what of the adult individual who having tried all sorts of medical treatment, diet, exercise, position, rest, irrigations, intestinal antiseptics, lubricants, massage, cathartics, etc., and is no better, and also who has had demonstrated (by x-ray) surgical kinks and great prolapsus of the viscera, especially of the colon and stomach, and who may have had many attacks of intestinal pain, colic, or symptoms of appendicitis, or possibly has passed from the stage of constipation to one of diarrhea with a pronounced colitis, the latter stage being only nature's vain attempt to eliminate the poisonous substances? or what of that case in which nature further attempts to rid the canal of these substances by periodical attacks of vomiting?

*(To be continued)*

## THE CONSERVATIVE USE OF LANE'S PLATES IN THE TREATMENT OF FRACTURES\*

By E. K. GREEN, M. D.

MINNEAPOLIS

I know of no condition in the practice of medicine and surgery which calls for greater judgment on the part of the surgeon, or which is attended with more worry and anxiety during its course, than the management of the so-called "bad fracture." Were it not for the kind assistance of nature in producing fairly good function with an incorrect anatomical condition, we all, without exception, would receive criticism and blame for results over which we have no control.

Since the advent of aseptic surgery and the x-ray much has been done in bone-surgery, and at first thought it would seem that, with the human skeleton, where the correction of anatomical defects is largely a matter of mechanics, we ought to be able to get perfect results. Such, however, is not always the case. In this paper

I shall confine myself to Lane's method of bone-plating, and while I do not think it best as a universal method of treating fractures, yet there are cases where at present at least it is our best method.

With the closed method of treating fractures the surgeon tried to familiarize himself with the anatomy of the skeleton, and the mechanics of the joints and various muscles, in such a way as to determine with a given fracture just what the natural displacement and deformity would be, and then with splints, extension, and counter-extension he would endeavor to overcome the faulty mechanics, and restore the fragments as nearly as possible to their correct anatomical position. We all have text-books that deal with these fractures in the minutest detail; and with the old method a large majority of fractures can be treated with very satisfactory results.

\*Read before the Kandiyohi-Swift County Medical Society, June 4, 1914.

With the modern open operation, however, those of us who are more aggressive, simply because of a small deformity, are quick to give up the old safe method, and resort to the new and more dangerous one. Sir Arbuthnot Lane, of London, as far back as 1894, made this statement: "A perfect result with the closed method was exceedingly rare, and the deformity which we get is a disgrace to the profession"; and he gave the following reasons for the open method:

"1. It relieves the patient from pain.

"2. It frees the parts from the tension produced by the extravasation of blood.

"3. It shortens disability.

"4. Restores anatomical perfection."

Since then to the present time surgeons all over the world have been trying the open operation with varied results, and, as a consequence, we have the profession divided into two schools,—those of the conservative class, who believe that plating is necessary in a few selected cases; and those of the more radical and aggressive class, who believe that practically all fractures should be treated by the open method.

Some surgeons are not of a mechanical turn of mind. They could not repair even a broken chair, and when their automobile stops in the middle of the street they haven't the slightest idea what is the matter with it. Such men are not the ones you would choose to deal with a piece of mechanism as complicated as the human skeleton by open operation. So we readily see the evil which naturally comes from such a radical statement as that of Mr. Lane in saying that practically all fractures should be plated, because men all over the world, whether they have the natural ability or not or the necessary preparation, begin to do this work. Results much worse than with the closed method are very frequently seen.

My first experience with a case that had been plated made a lasting impression on me. Some eight years ago I was called to see a man seven-five years of age who had had a fracture of the upper third of the femur. He had been taken to the Minneapolis City Hospital, where the fracture was plated. When I saw him he had an infection of the leg, and was taken home to die, which he did in about ten days. Of course the argument might be made that it was better to make the trial for a good result, and lose his life, than to be crippled for life. However, it taught me to be conservative.

Surgical judgment is a rare quality, which every surgeon should possess, but, in looking over the reports on Lane plating, we are impressed with the fact that it is very variable, because we find surgeons of equal ability with very diverse opinions on the subject. One thing I must say, when we wish to learn a given method we must learn it from the man who invented it. We must know all he has to say about it. We must see him work, and we must try and find out what it is that makes him master of this given method.

We frequently see reports like that of Dr. Walter M. Brickner, of Mount Sinai Hospital, New York City, who, in the *American Journal of Surgery* for January, 1914, reported two cases which he had treated with Lane's plates, and had put up in casts and kept perfectly quiet for some time; and in both cases he had non-union. He afterward treated them with bone-transplant, and got union. He makes these two cases a basis of condemnation of the Lane method, which seems to me to be hardly fair, because, had he gone into the subject thoroughly, he probably would have found the reason for his failure. Lane certainly does get results. If we are to be guided by the men of little experience in the matter of bone-plating, we certainly must consider it only in the most extreme cases. Dr. J. B. Murphy, of Chicago, whom we all recognize as a man of very great ability in all kinds of bone-surgery, in speaking of the present use of plates in the treatment of fractures, says the number of cases which come to us with infection after the application of bone-plates is simply appalling, and he quotes from Dr. H. N. Moyer, who had charge of the medical defence for the Illinois Medical Society, the following: "Unless you can do something to restrict the use of plates in fractures our medicolegal fund will not last long." He also makes the statement that he believes the plates hold the fractures too still, and that, as a result, we get non-union. They should be used only to hold the bones in apposition during the progress of osteogenesis.

Dr. Willard Bartlett, of St. Louis, who has had a great many of these cases, together with a very large amount of experimental work on the dog, gives the following report in the *Boston Medical and Surgical Journal*, for January, 1913: Out of 76 cases operated on, 38 of which were followed up, he considered 7 to be absolute failures, and he also had a mortality of 3.9 per cent. He is very much inclined to be conservative, and



gives "functional defect" as the only reason for plating.

Dr. J. M. Dodd, of Ashland, Wis., made this statement in a paper which he read at the Soo Surgical Association, which was held at Milwaukee last fall: "After a surgical practice of nearly a quarter of a century, I have concluded not to treat another fracture except by the open method, unless the skiagraph shows correct adjustment after a reasonable amount of manipulation; and I believe no surgeon should do so who has available the essentials for bone-surgery." I think he reported some thirty-six cases, and he also stated that he took out the plates in the majority of the cases.

In October, 1910, Dr. M. S. Henderson, of Rochester, Minn., reported twenty-seven cases of bone-plating in which sixteen were followed up, and in only two cases were the plates removed. A few days ago, however, while visiting the Rochester clinic, I saw Dr. Henderson do several cases of bone-graft for old ununited fractures, but none of bone-plating; and in conversation with him, he said he believed the plates should be used in selected cases only, where the fragments could not be held in position in any other way. He also said that at the present time they are taking out many more plates than they are putting in.

One of the best reports which I could get was from Dr. Nelson M. Percy, of Chicago, who works at Augustana Hospital with Dr. Oschner. I saw him do some bone-plating last fall at the Surgical Congress; and his aseptic technic is of the extreme, which I will explain a little later. I will read a letter which I received from him a short time ago:

Dr. E. K. Green, Chicago, May 18, 1914.  
Minneapolis, Minn.

My Dear Dr. Green:

In reply to your letter of inquiry concerning the bone-plating, I will say that I have operated upon 123 cases. Out of the first 50 cases it was necessary to remove 8 plates, and from the last 73 cases only 2 plates. In 5 of the cases from which plates have been removed, I made the mistake of placing the plates subcutaneously and of having the incision in the skin directly over the plate. Had the plates been placed in an area where they would have been covered by muscle, and the skin-incision made so that it would be away from the location of the plates, I am quite sure some of these would not have had to have the plates removed.

Very sincerely,

N. M. PERCY.

Of course, we know he has not been able to follow up all his cases, nevertheless I would consider that he made a very good record.

In regard to Lane's work: I have been unable to get any report of the number of cases operated on, and the subsequent results; but he boldly makes the statement that, "if the plate is properly put in there will be no trouble following its application, and no occasion for its removal." Also, in regard to non-union, he says: "It may be in some few cases of simple fracture that non-union results from some cause which could not be obviated by proper treatment, but I have never come across one instance in which union would not have resulted if sufficient operative measures had been adopted, though a very large number have come under my observation."

Personally, I am not satisfied with such statements, because he seems to be in a class by himself in making them; but I heard Dr. Percy say that, in his travels through the British Isles two years ago this summer, in asking the various surgeons if they had removed any plates put in by Mr. Lane, they all, with one accord, said they had not. So I think we are perfectly fair in saying that in the hands of Mr. Lane, who invented the method and perfected the technic, the application of the plate gives reasonably good results. With the profession at large, however, I feel like making the same statement in regard to the use of the Lane plates as, for example, we have heard made in regard to the use of the cystoscope. When we see the results of the misuse of the cystoscope we are at a loss to know whether the invention has not done humanity more harm than good. The cystoscope, however, has come to stay, and probably also the Lane plates, although I am not so positive in regard to the latter.

In considering the use of the plates, one thing should be borne in mind, and that is, this work is of a necessity classed with the heaviest surgery for the following reasons:

1. The technic is difficult, involving mechanics, which, in some cases, is not a quality of the surgeon operating.
2. It requires more assistants than ordinary, and the surgeon must be something of a foreman, in order to have each man in his place and doing his duty.
3. The instruments used are of a very different nature from those commonly used; and the surgeon is not familiar with them.
4. Lane's method of aseptic technic, which I consider of paramount importance, is hard to maintain.
5. The knowledge of the anatomy of the ex-

tremities is easily forgotten, and we strike unexpected difficulties because of that fact.

The reasons for not plating are, briefly, the following:

1. Danger of infection, because, when we get it, we know we have done our patient irreparable harm.

2. The introduction of a foreign body, which, as a general principle, is not good surgery and particularly in the region of bones, because they are not as tolerant of foreign bodies as some other tissues.

3. We subject the patient to a major operation with a general anesthetic, at least until we know more about nerve-blocking than we do at present, and this always necessitates some danger and extra expense.

The reasons for doing bone-plating are the following:

1. Fractures that cannot readily be held in position, and, as a result, produce great deformity or great disability, require such support.

2. Recent ununited fractures, especially those having the interposition of some soft tissue, also demand support.

3. The demand of the laity and large corporations for more perfect anatomical and functional results.

#### THE TECHNIC

In the selection of instruments one of the most important considerations is to get instruments sufficiently large and strong to hold the bones firmly during the manipulation of the fragments, with sharp jaws of the right shape to prevent slipping. In the fracture of the femur, for example, Lane's large forceps is probably the best; and, in order to do the work well, one should have two, one for each fragment. A surgeon who intends to do bone-work should always be on the watch for special instruments that he is likely to need, whether obtained at the instrument or the hardware store, because they are difficult to get on the spur of the moment. He must also have drills, screw-drivers, chisels, etc. I find the kind used by mechanics often the best. One should not attempt one of these operations without having ready every possible instrument that may be needed.

Lane says, "the time to operate is as soon as you can get the skin sterilized." Murphy says, "wait four or five days till we get the lymph-channels blocked." Possibly, it makes no great difference, because both these surgeons are men of great ability and judgment. However, I

think we all agree the best time to operate is before callus-formation begins.

The preparation of the patient should be the same as for any major operation. The very free use of iodine on the limbs, particularly where the skin is tough, I believe, is important. There is one procedure which I wish to mention, however, and this is in the preparation of the distal part of the limb. After iodizing and covering it with sterile towels, wrap up tightly with a sterile bandage; and then the assistant handling it remains sterile to do anything you wish. There is not the constant dropping off of the towels which we so frequently see.

In the sterilization of instruments, I wish to mention Dr. Percy's method. He picks out the instruments he intends to use, puts them in the instrument-tray in the order which he wants them on the table, and then, after sterilizing, the tray is placed on the table, and no one touches the tray or instruments except himself. There is no rearranging of instruments by the assistant or nurse. Also in regard to sponges, towels, etc.: they should be rolled out on the table without handling, and never touched except by instruments. During the operation when an instrument has been used for a time, it should be re-sterilized, which insures greater safety.

In the exposure of the fragments, I will illustrate with the femur as a typical operation. First, the incision should be liberal, at least eight or ten inches long, and the skin put out of sight absolutely for the rest of the operation. In beginning the incision, make it positive with one stroke of the knife through the skin, superficial fascia, and possibly the deep fascia into the muscle. Do not let your assistant begin sponging this wound because of the danger of rubbing material from the skin into the wound. Discard the knife that came in contact with the skin to be re-sterilized, and cofferdam the skin out of sight with towels and forceps for the purpose of holding them in place. We then have a perfectly clean field to work in; and if the bleeding is from vessels of sufficient size to be necessary, catch them with forceps which are left on until hemostasis is brought about without tying. We now go down boldly on the bone, freeing the ends and getting them well into view, so we can see what we are doing. Never work in the dark.

In regard to the periosteum: I heard Mr. Lane say, when asked what he did with the

periosteum while operating at Chicago last fall, "I don't know; I never saw it."

The manipulation of the fragments is often very difficult. If it is a transverse fracture, I think the best method, producing the least amount of trauma, is to pull the distal part of the limb across the table in such a way as to angulate the fragments, and then, holding the ends together, replacing the limb, the bones are pried into position. There are various kinds of extension-apparatus on the market which can be used to advantage with spiral fractures. In all our manipulation, however, we should be as methodical and positive as possible with the least amount of trauma.

The kind of plates and screws should be such as to hold the bones definitely. I prefer large-sized plates, shaped to fit the bone, one or more, if necessary. The screws should be threaded to the head. The ordinary screws are just as good, if not better, when properly threaded, because the thread is heavy enough to take hold well. In selecting the proper drill, calipers often will aid; and it is well to have several drills of slightly different size, all numbered and placed so you can select quickly in case the screw is a little large for the hole. Those of us who have handled tools all our lives have some idea of the strength of a screw; and this is the time when we greatly need this judgment. I have seen as many as three screws broken at an operation; and this always necessitates delay.

In the closure of the wound Lane puts in no deep sutures, and ties no blood-vessels. He says, "he prefers a blood clot to a suture." This last statement might be questioned by some of us; and yet I feel sure the smaller the amount of foreign material introduced the better. Lane also uses the skin-clip, instead of sutures.

There is one thing which I wish to mention in passing, and that is shock. For some reason or other in femur cases at times there is a tremendous amount of shock, and it is well for us to be on our guard.

The after-treatment, I think, is very important. Mr. Lane says we should get the patients

up right away, and manipulate the joints, so they do not become stiff, and, according to Dr. Murphy's theory, keeping the patients too quiet is one of the reasons for non-union, which is probably one reason why Lane gets such good results. It seems to me there are two things that should be remembered: first, the hardware put in is not as strong as the bone itself, and we should be careful, and some support would be indicated; second, the fragments are, however, in position, and when the immediate effect of the operation is over some passive motion will be beneficial.

In conclusion, let us not forget the safety of the old closed method with the reasonably good results which we obtain from conscientiously studying each case, uniting the fundamental principles which have been worked out in the past with the splendid opportunities of the present. On the other hand, when the anatomical and ultimate functional result cannot be obtained, let us courageously take up the modern operation, bearing in mind that there are four points which are absolutely essential for good results in the application of Lane's plates:

1. Lane's aseptic technic. Although it is difficult to maintain, all men of experience seem to be united as to its importance; and our aim in that respect should be *absolute perfection*.

2. The plates should be put in with the minimum amount of trauma, the incision being such, and the instruments of such kind, as to allow manipulation of the fragments without tearing of muscle or unduly stretching or pulling the nerves and blood-vessels.

3. The fragments should be accurately placed in position by the proper instruments; and sufficient hardware should be used positively to hold them where they belong.

4. The principles of osteogenesis, as laid down by Dr. J. B. Murphy, as regards the periosteum, the autograft or bone-graft, and the manipulation of the parts should be remembered, and respected throughout the entire course of every case which comes to operation.



## CAISSON-DISEASE ON THE CUYUNA IRON RANGE

BY R. J. SEWALL, M. D.

CROSBY, MINNESOTA

Dr. Keays' classification of the forms of this illness is as follows:

- A. Cases showing pain in various parts of the body, commonly called rheumatic, or "bends."
- B. Cases showing pain and prostration.
- C. Cases showing symptoms referable to the central nervous system:
  - (1) Brain, hemiplegia.
  - (2) Spinal cord.
    - (a) Sensory disturbance.
    - (b) Motor disturbance.
    - (c) Sensory and motor disturbance.
- D. Cases showing vertigo, or "blind staggers."
- E. Cases showing dyspnea and sense of constriction of the chest, or "chokes."
- F. Cases showing partial or complete unconsciousness with collapse.

In this portion of the country occupational diseases are so rare as to be practically nil. The subject of this paper, in fact caisson sickness and caisson paralysis, may, according to the writer's idea, more properly be classed as an accidental injury, coincident to a lowered bodily metabolism and preceded by a certain amount of shock, due to mental anxiety. This is borne out by a number of our cases, where illness occurred the first shift that the patient worked; and further, we know that in shock from whatever cause, there is an engorgement and a certain amount of stasis of the blood in the larger vessels of the trunk. Let this condition be augmented by an excess of nitrogen gas in the blood-stream, the pressure becomes still greater and the traumatism occurs.

From intimate observation of a considerable number of these cases occurring during the sinking of five concrete shafts by the New York Foundation Company on the Cuyuna Iron Range, covering a period of two years, and in three cases in which paraplegia was present, it appeared that the diapedesis or extravasation of nitrogen gas and blood serum through the vessel walls occurred gradually, a slow hemorrhage, taking several hours before paralysis was complete; during which time the patient was uniformly placed under pressure in the hospital lock, and caused to exercise when possible. Hot applications and massage were applied and stimulants given. In the spinal cases there was no pain. The patient's mind was clear and he was cheerful, even jovial. Sensory reaction was present usually, but all motor impulses below the

umbilicus, after the lapse of a few hours, were abolished. There was intestinal atony which gave rise to great tympanites the first few days, and control of the bladder and rectum was lost.

We have obtained two autopsies in this class of cases—one performed by the writer in Brainerd with Dr. J. A. Thabes and Dr. F. J. Sykora, the other in Crosby by Dr. E. T. Bell, of the Department of Pathology, University of Minnesota, Minneapolis. Von Schrotter, in a report of twenty autopsies, demonstrated that those dying after prolonged illness showed distinct lesions, such as disseminated and transverse myelitis and hemorrhage, with consequent complications, such as pneumonia, cystitis, pyonephritis, bed sores, etc., while those dying soon after decompression showed the presence in greater or less degree of free gas in the circulatory system.

In cases of sudden death where no macroscopic lesions were found, it is presumable that death was due to the involvement of vital centers by emboli too small to be seen.

The symptoms are various and many, and depend largely upon the amount of gas set free in the blood, and more particularly upon the special anatomical region in which this gas makes its escape. In many cases, as where soft tissues or unimportant organs are involved, gas emboli will give no symptoms, but a small gas bubble will cause pain when present in some unyielding tissue, such as in the periosteum or neurilemma, particularly when near the synovial surfaces. When occurring in the muscle sheaths, considerable hemorrhage may result and may often be seen under the skin in the form of a fine petechial hemorrhage. Occurring in considerable quantity in the motor area of the spinal cord, particularly in the anterior columns of grey matter, or in the cornua, the gas bubbles cause paralysis. When in the semicircular canal, vertigo; and when in the lenticulostriate artery, or knee of the internal capsule, or in the coronary artery or one of its branches, syncope, coma and death.

The treatment is, recompression at once, and long continued in ominous cases. This is the specific.

The medical air-lock, or hospital lock, as it is called, is used by the Foundation Company on the Cuyuna Iron Range.

It consists of an air-tight steel cylinder, resembling a huge boiler, eight feet in diameter

and sixteen feet long, and closed at one end. At the other end is an air-tight door which opens inwards. The hospital lock is divided into two compartments by means of a transverse partition, which also has a door opening toward the inner compartment. The pressure can be raised or lowered from either chamber by means of compressed-air pipes and outlet valves. This arrangement enables the doctor, or attendant, to enter or leave the chamber in which the patient is being treated, and still maintain the pressure. The inner chamber has two bunks, three and one-half feet high, electric lights, pressure gauge and steam heat. Heavy glass windows are provided so that the patient may be watched from the outside.

given has been recommended, but in our hands has proven useless. Oxygen given in severe cases may prove of benefit.

Considerable care is exercised in the selection of men for air-pressure work. A physical examination is required to be made by the mine physician, and he excludes subjects with functional or valvular trouble, or atheromatous arterial changes, as well as those with pulmonary or gastric derangements. The condition of the bowels is important, and they must be freely evacuated at least daily, nor should the worker ever enter the air-lock without some food at least in the stomach.

The element of susceptibility plays an important rôle, and the writer's observation tends to



The patient is hurried into the hospital lock as soon as symptoms appear, and the air turned on and the pressure raised quickly to the working pressure which he has just left. Relief of the symptoms will usually occur at once when this point is reached, or before. Decompression may then be begun, at a rate not more than a pound per minute, and in bad cases much more slowly. It is highly necessary that the patient keep up motion, if paralysis is not present. So he is walked up and down by the attendant. Massage, passive motion, and hot applications are also used, and artificial respiration when *in extremis*.

If symptoms return after leaving the lock, recompression is indicated. Some benefit may be derived from counter-irritation and liniments, and the hypodermic injection of one-fourth of a grain of morphine for painful symptoms has given relief in many of our cases. Ergot in drachm doses every hour until two ounces have been

show that old air-pressure men, while far less likely to develop symptoms than raw recruits, who are under pressure for the first or perhaps second or third shifts, still these same "old-timers," when passing from one job to another, are more susceptible at the start than after getting worked into the routine, and becoming accustomed to changes in altitude, climate, water and food conditions in that particular locality, and in the particular pressure involved. Also, that those starting at the commencement of a new job and working gradually up from slightly over one atmosphere to two or more, stand the ordeal better and are safer and freer from sickness than those who jump immediately into a pressure of thirty, forty, or more pounds without previous preparation, or after a prolonged spree or enforced vacation. Lock tenders, superintendents and engineers, whose stay "under the air" is shorter than that of the regular shift and who

do little or no manual labor, do not suffer from "the bends" or from caisson paralysis so frequently as do the "diggers" or "sand-hogs," so called.

Fatal cases seldom occur from pressures below thirty pounds, although our first case had paraplegia from a pressure of twenty-two pounds, and succumbed after an illness of two months; our second case from a pressure of forty-seven pounds, and our third from a pressure of forty-nine pounds. Case No. 1 was undoubtedly due to an infraction of the rules, coming out of a hot shaft, on the bucket, and in less than five minutes into a temperature below zero.

Dr. L. M. Ryan, Medical Director of the New York Foundation Company, states that the patient should not be recompressed to the number of pounds in which he has been working, better results being obtained by recompressing to two-thirds what the pressure was in the working chamber.

In the work on the Cuyuna Range, the problem of safeguarding the men becomes a serious one as the depth of the shaft increases. A shaft of over one hundred feet means high pressure and increased fatigue, as the men are compelled to climb up and down a rope ladder the entire distance. However, the records show that in the construction of the East River tunnels, New York, the method used was:

- 1st. Decompression from forty pounds to twenty-nine and one-half pounds in five minutes.
- 2nd. Ten minutes walking in twenty-nine pounds pressure.
- 3rd. Decompression from twenty-nine pounds to twelve and one-half pounds in eight minutes.
- 4th. Ten minutes walking in twelve and one-half pounds pressure.
- 5th. Decompression from twelve and one-half pounds to zero in fifteen minutes.

Lengths of tunnel were arranged between locks for walking. Of the 8,500 man-shifts thus decompressed by the stage method, there were 1.62 per cent of cases of "bends" and no serious ones.

Thus it is seen, that the exercise incident to *walking* through the lengths of tunnel, not under uniform pressure, but gradations of lessening in pressure, is a prime factor in assisting the circulatory system to eliminate the nitrogen gas confined in the blood-stream.

The schedule in use on the Cuyuna by the Foundation Company is as follows with respect to the time of shifts in relation to the pressure:

Pressure twenty-two pounds or under: eight hours, four hours on and four off, with one-half hour between for luncheon.

Pressure twenty-two to thirty pounds: three hours on, three hours off, three hours on.

Pressure thirty to thirty-five pounds: two hours on, four hours off, two hours on.

Pressure thirty-five to forty pounds: one and one-half hours on, one-half hour to come out, four and one-half hours off, one and one-half hours on.

Pressure forty to forty-five pounds: forty-five minutes on, one-half to three-fourths hour to come out, five hours off, forty-five minutes on.

#### PATHOLOGY

As early as 1854 theories were advanced to explain the pathology of caisson-disease. Pol and Watterelle attributed it to mechanical congestion.

In 1878 Paul Bert came forward with this statement: "The blood of a man, or of an animal, when in compressed air, takes into solution an increased quantity of oxygen and nitrogen from the air, the quantity of the gases absorbed being in direct proportion to the air pressure increase. The gases taken up by the blood are gradually distributed to the various tissues in their fluids. With rapid decompression (i. e., return to normal atmospheric pressure) the nitrogen gas bubbles off in the blood. These bubbles act as emboli, block up the capillaries in one or another part of the body, and, by cutting off the blood supply, or by direct mechanical violence, cause the symptoms of compressed air disease. Symptoms of illness may be prevented by making decompression slow enough to allow the absorbed nitrogen to escape from the lungs."

This theory is borne out by Dr. Frederick L. Keays, of Cornell, in his exhaustive report in 1909 of 3,962 cases of compressed air illness occurring at the Pennsylvania East River tunnels during the time he was medical director there.

In the middle of the last century, Triger applied the use of compressed air caissons to the sinking of coal shafts through the wet soil at Chalons, on the banks of the Loire. Caisson-disease appeared. Hoppe-Seyler and Thomas Schwann, in Germany, and Bucquoy, in France, gave correct suggestions as to its cause, to-wit: that it was "due to setting free of bubbles of gas in the blood. Nitrogen gas is dissolved, according to partial pressure laws, during exposure to compressed air, and this dissolved gas, having no time to escape through the lungs, if the pressure be suddenly lowered, bubbles off *just as carbonic acid gas escapes from aerated water when the bottle is uncorked.*"



Dr. Leonard Hill carried on extensive experiments in England for many years. In a steel boiler, he and others were subjected to a pressure of seventy-five and even ninety-two pounds per square inch for half an hour. They were safely decompressed by the uniform method, and on only two occasions suffered from minor local symptoms. Divers have gone to a corresponding depth, and been decompressed safely, by the stage method, the pressure under water being exactly analogous to that under air. Therefore the pathology and symptomatology of caisson-disease, and diver's illness, or "diver's palsy," are the same. Dr. Hill found that in the steel boiler there was no difference in the sense of pressure between three and five atmospheres, but the voice became high-pitched and nasal in quality, and whispering or whistling were impossible. The writer, when accompanying patients in the air-lock or hospital lock, found that there is a sense of exhilaration, or well being, felt, due to the increased amount of oxygen absorbed, and only on one occasion were any untoward symptoms suffered, when under a pressure of twenty pounds a sharp, severe pain at the root of the nose and through the frontal sinuses was experienced, followed on decompression by slight epistaxis, due to a "cold in the head" having partially or entirely occluded the lumen of the air passages, and the inequality of pressure was sufficient to cause the pain and traumatism. A similar condition obtains when, from congestion, the Eustachian tubes prevent equalization. In fact, it is here that the greatest discomfort of caisson work lies, and a large part of our work as attending physicians consists in relieving these symptoms.

CASE 1.—Jack Kane, æt. 40.

Birthplace, Ireland. Engaged in caisson work for ten years or more.

Working under a pressure of twenty-two pounds, sinking a concrete mining shaft at Armour No. 1 mine, of the Iroquois Iron Company, at Ironton. Patient was obliged to ascend to the surface. Disobeyed orders by going through air lock standing on the rim of the bucket, taking perhaps ten minutes, or more likely, less, whereas he should have passed slowly up the shaft, climbing the rope ladder, and going slowly through the air lock, taking a half hour at least.

This patient coming abruptly out of a hot shaft into a temperature of below zero, soon experienced a sensation of pain in the back radiating through the abdomen. As stated by him, he "felt as if he was going to drop," which he quite promptly did. The hospital lock not being as yet at this shaft in readiness, the patient was placed on the bench in the warm "dry" and with clothing removed massage and hot applications were applied to the back and legs. So energetic were the workers, before the arrival of the physician, that a large blister,

at least ten inches square, was raised over the lumbar and sacral regions by the scalding hot towels.

The patient spoke of numbness in the legs; the pain was no longer present. On being set up, and then raised to his feet, his legs wobbled and collapsed under him. All motor impulses were gone to return no more. Patient was removed to Cuyuna Hospital, where he was placed on a paralysis bed. Retention of urine and obstinate constipation at first, relieved with difficulty, thereafter, catheter *in situ*, and involuntary evacuation of the bowels, which remained loose from the early toxemia until the end.

Patient made a settlement at the end of a month and was sent to his people in Chicago, where he died in Cook County Hospital within sixty days. The end in this case was hastened by the sepsis accompanying the bed sore, which became infected in spite of the utmost care, and extended from the first dorsal vertebra to the tip of the coccyx.

CASE 2.—Robert Gibby, æt. 42.

Englishman. Had just arrived from Chicago, an old air-pressure man, a typical "sand-hog."

Went in and worked one shift of one and one-half hours. Came through the lock in one-fourth hour. Within a few minutes, while walking on the surface, began to feel a weakness in the legs. Entered hospital lock at once and remained in all night. Was able to walk about for some hours in the lock, then lost control of lower limbs. By morning all motor impulses and reflexes below the umbilicus were abolished. Sensation was diminished over the lower portion of the legs and the inside of the thighs. Patient was cheerful and experienced no pain. Was removed to the Sisters' Hospital, where he remained until death, five months later. No improvement was obtained under the usual lines of treatment. Death finally came from exhaustion and septic infection from bed sores.

CASE 3.—Geo. Kangas, æt. 20.

Finnish. Had never worked under pressure before.

Was attracted by the wage scale then being paid at the Adams Mine Shaft, near Deerwood, five dollars per day for two shifts of forty-five minutes each. This patient worked forty-five minutes under an air pressure of forty-nine pounds. Was decompressed in twenty-eight minutes. On climbing out of the lock began to feel a weakness in the legs. Was assisted to the hospital lock (one hundred feet away) and kept there twelve hours, under pressure graduated up to thirty pounds and down.

The first two hours he was able to walk back and forth, thereafter paralysis of lower extremities supervened, which was complete from lumbar region down, in six hours. This patient was removed to the hospital at Crosby, where he lay for five months before death ended his sufferings, running the usual course.

At the urgent solicitation of this patient and his relatives, who could not understand why medical science could not remove the condition, lumbar puncture was resorted to on the tenth day of his illness. Operation was performed under aseptic precautions by Dr. T. H. Monahan, assisted by the writer. About three drachms of cerebrospinal fluid were evacuated.

The patient insisted that he felt better. However, as the pathological condition lay in the cord itself, there was no real improvement. Dr. E. T. Bell, of the Chair of Bacteriology and Pathology of the University of Minnesota, came up and performed the autopsy, and the sections were cut at the laboratory.

*Pathological Note*

By A. S. HAMILTON, M. D.—The material for the study of the nervous system consists of a portion of the cord from Case 2 and the entire cord and brain from Case 3. In Case 2 the cord had been cut out at the lower thoracic region, but the exact point could not be determined on account of the disintegration of nerve tissue at the point of section. The disintegrated area and the portion of the cord below were available for study. In the area of greatest softening, the gray and white matter could be distinguished with difficulty, and

whitish-yellow patches, evidently areas of septic infarction. There are similar areas in both kidneys. The mucosa of the bladder is thickened and blackish in color and the lower part of the bladder contains a considerable quantity of purulent material.

The brain shows no gross lesions externally. External examination of the spinal cord also shows nothing abnormal, but, upon sectioning, more or less softening and disorganization is visible in the lumbar and lower thoracic regions. In this area the tissue is

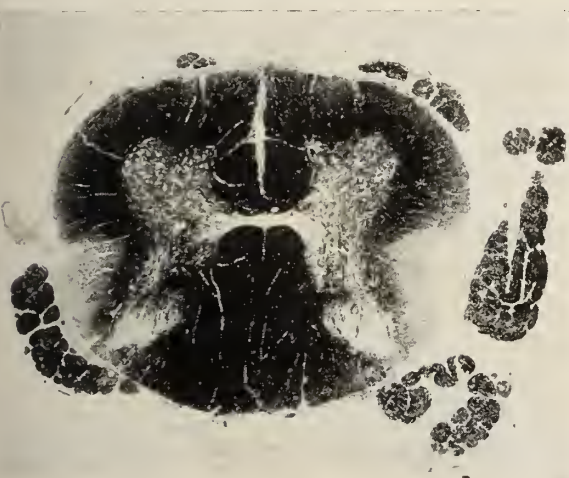


Fig. 1.



Fig. 2.

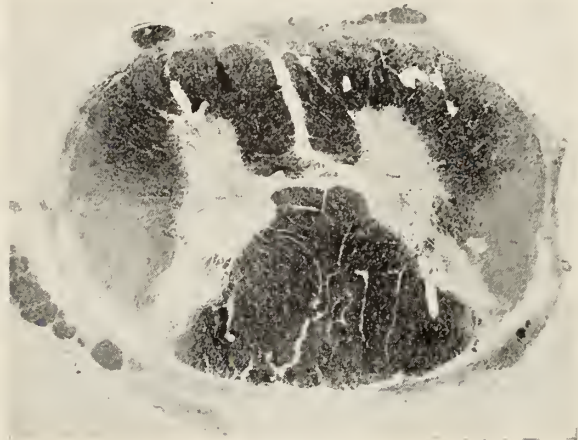


Fig. 3.



Fig. 4.

microscopic preparations showed almost complete disintegration in this region. There were no hemorrhages.

Figure 1 shows a cross-section of the cord below the point of softening, stained by the Weigert method. The descending tracts in the lateral area are evidently largely destroyed.

An abstract of the findings at the autopsy in Case 3, done by Dr. E. T. Bell, is as follows:

The body is greatly emaciated and there are numerous ulcerated areas, especially over the sacrum and the trochanters. The subcutaneous and other adipose tissue is almost gone. In both lungs are small, consolidated areas, dark red in color and containing numerous

extremely soft and the grey matter is not clearly distinguishable from the white. In the middle and upper thoracic and cervical cords no gross lesions are clearly seen.

Figures 2-3-4 are cross-sections of the spinal cord, stained by the Weigert method, from this case. Figure 2 is above the lesion and a complete degeneration of all the ascending fibers in the posterior columns, which entered the cord below the seat of the myelitis, is shown. The degree of the softening at the margin of the cord is greater than one would ordinarily expect. In Figures 3 and 4, which were taken below the seat of the myelitis, the descending degeneration is seen.



# THE JOURNAL-LANCET

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W. A. JONES, M.D., EDITOR

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## STATE BOARD OF HEALTH LABORATORIES CLOSE

As an illustration of what wholesale and thoughtless efforts at economy can accomplish, the Minnesota State Board of Health has been compelled to discontinue all of its laboratory work until August 1st, two and one-half months, during which time no examinations will be made for typhoid, diphtheria, or tuberculosis. This closure is due to the failure of the Legislature to appropriate sufficient funds to carry over the deficit of the two years just past. From 1912 to 1914 the work of the laboratories has increased in its various departments 97.4 per cent. In 1913 the increase was 198.5 per cent. The Legislature failed to appreciate this fact. As an illustration, the number of diphtheria examinations in the diagnostic laboratory during 1912 was 13,255, and in the year 1914 the number was increased to 23,761. The blood tests in typhoid in 1912 were 1,406, while in 1914 they had increased to 11,352. Sputum examinations increased only moderately. In 1912 the number was 1,323, and in 1914 it was 2,004. The same proportional increase took place in the St. Louis County Branch Laboratory and in the Mankato Branch Laboratory. The result is that the State

Board of Health has for its incidental expenses, which means largely the purchase of supplies and necessary printed matter as well as materials, a balance of \$1,093.14 to last until the first of August. The Laboratory alone will need \$450 a month at the minimum, while the average demand is about \$600 a month. It will readily be seen from this present embarrassment that no half-way measures could have been adopted. The Laboratory must either run on full time and full equipment, or must be closed down absolutely.

This means, too, that the Laboratory employees will be reduced in number, and those who remain will simply do the necessary work to catch up with what has lasted over the two preceding years. In order to meet the reduced appropriations, the Board has been obliged to discontinue the services of some of its most important members. For instance, Prof. Frederick Bass, who has had charge of the Engineering Division for the past eight years, has been dropped. Dr. R. H. Mullin, the head of the Division of Sanitation, has also been dropped. Dr. H. W. Hill, the publicity man of the State Board, Mr. A. R. Blakey, who has charge of the Tuberculosis Exhibit, Miss M. B. Stark, a worker in the Laboratory, and three other women workers, are among those whose services were discontinued. Mr. J. A. Childs, of the Engineering Department, has been reduced to part time. Dr. C. C. Pratt, who has charge of the Mankato Branch Laboratory, is unfortunate in having his salary discontinued. Another valuable worker, whose services will have to be discontinued, is Dr. H. G. Lampson, who has been doing survey work in the various counties in the census of tuberculosis. Further than this, a reduction in salaries in the vital-statistics department has been made amounting to more than 60 per cent. All of the women employees, including the chief statistician, suffer from this reduction. No one can estimate the amount of disorder and embarrassment caused by the dropping off of workers, and the reduction in the salaries of others. It means a disorder of the records in communicable diseases which will demoralize the efforts of the county health officers; and it will take months, and perhaps years, to get these records back on a satisfactory footing, providing the coming Legislature appreciates the necessity of public-health work. If necessary, the Board is planning to reduce the salaries of the remaining workers 10 or 15 per cent, in order to keep within the appropriations, until more funds are available.



The whole situation is deplorable, but the appropriations committee, who, of course, are not supposed to know anything about the details of public-health work, will have an opportunity to show whether economy in health matters is wise or unwise. There is no recourse, as no moneys can be obtained even from an emergency or contingent fund in the hands of the State officers, the Governor, Attorney-General, and State Treasurer. The State Board expects to keep up the department of vital statistics even at a ruinous disadvantage. Some of the members of the appropriations committee are attorneys, but they failed to see the necessity of vital statistics. The fact is, they know nothing about it. One of the members, a prominent attorney, two years ago, was defending a client who was obliged to establish his birth record; and the only way that it could be done was through the State Board of Health who furnished him a certified copy which was admitted as evidence in court, and yet this same attorney was in favor of a reduction in the appropriations of the State Board of Health, and particularly in the matter of vital statistics.

Another especially important feature of the work of the State Board will have to be dropped, namely, the field work, so that health officers or health commissioners throughout the State who are confronted by epidemics and by sewerage disposal propositions, also problems of water supply, and the like, will have to rely upon their own judgment until the field work can be re-established. The State officials feel that "epidemics are a normal condition of health," and they do not demand relief from emergency funds. The health officers and the State Board of Health feel that epidemics are vitally important, and should be taken in hand at the earliest possible moment to prevent the spread of disease and loss of life, or the development of deformities which come from such conditions.

For the next two years the Board will have to struggle along as best it can.

The Board is determined to keep within its appropriations at whatever cost; and if there is any criticism against the methods of the Board the blame lies with the appropriations committee. Perhaps the State needs this lesson, or perhaps the State Board of Health needs curbing in its enthusiasm for the conservation of the public health. Only time will determine which.

## A REVIEW OF THE TUBERCULOSIS SITUATION

The number of deaths from tuberculosis in Minnesota from 1890 to 1914, inclusive, presents a very interesting compilation of figures. It shows that the rate per million of deaths is comparatively proportional to the increase in population. These figures may show to the ordinary observer that tuberculosis has not diminished in the State of Minnesota in spite of the campaigns which have been carried on to eradicate the disease; and yet no one is justified in sitting back and doing nothing to try to improve the situation.

It may be noted in this connection that the special appropriations that the State Board of Health had for the investigation of tuberculosis have been cut off; consequently, the burden of the work will be put upon the Advisory Commission. The report also shows that there are many difficulties in the way of restraining cases of tuberculosis, even in the State Sanatoria.

The Board has issued a circular upon the situation, which we append practically in full. The table covers the data for each year from 1890 to 1914, but we give only each fifth year.

STATISTICAL TABLE

Year.	Population.	Deaths	Rate per million.
1890 .....	1,301,826	1,471	1,129
1895 .....	1,574,619	1,693	1,075
1900 .....	1,751,395	1,864	1,064
1905 .....	1,913,550	2,009	1,050
1910 .....	2,075,705	2,247	1,082
1914 .....	2,205,429	2,362	1,071

The figures show that the number of cases has not decreased, nor has the rate per million changed greatly.

Several years ago an active campaign was begun against tuberculosis. In due time, the State Sanatorium was established. The laws of 1911 made it possible for counties to establish sanatoria of their own for the care of this disease. St. Louis and Otter Tail counties took advantage of this law. The latter, however, had barely begun its institution before the law of 1913 went into effect providing for State aid to counties establishing such institutions.

The State Board of Health took no active steps looking to the control of tuberculosis until one year after the law providing State aid for county sanatoria went into effect, when it adopted the following resolutions:

WHEREAS, Tuberculosis is now recognized as a communicable disease,

THEREFORE, Be it resolved that a case of open tuberculosis must be isolated, either in a sanatorium or at home.

RESOLVED, That all early cases shall be so cared for as to prevent the disease from reaching a stage that will become dangerous to others, if possible.

The control of tuberculosis is as much a function of

the health department as is the control of scarlet fever, diphtheria, typhoid fever, or smallpox. The problem is a family and community problem rather than a question of the individual.

It would appear that, from the sanatorium point of view, this question has been looked upon largely, in this State, at least, as a problem relating to the patient rather than to the family or to the community, for it has been a common custom to discharge open cases of tuberculosis from State, county, and private institutions in Minnesota without any reference to their endangering others with whom they would be associated after they had been discharged. As a matter of fact, discharge has been carried out at the State Sanatorium where patients have refused to abide by the regulations of the institution.

The recent Legislature has seen fit, not only to continue the Advisory Commission, but to place upon it greater responsibility relating to the care of the tuberculous.

The question now is what the State Board of Health shall do as relates to the control of tuberculosis. The law relating to communicable diseases, as set forth in Sections 4646, 4647, and 4648, General Statutes, 1913, refers to tuberculosis as much as it does to scarlet fever, diphtheria, or any other communicable disease.

The State Board of Health, therefore, is in position to compel the municipalities to care for the open cases in such a way as not to endanger others. The expenses, where the individuals are poor, connected with such control rests primarily on the municipality (township, village, or city), but it can recover half of the amount from the county.

No State aid can be secured for such cases unless the county has a sanatorium of its own. With such an institution of its own, the cost for the proper care of these individuals rests on the county and the State. Therefore, a county with a sanatorium has relieved the local people of the burden, transferring that burden to the State.

It has been the custom of the State Board of Health in recent times, where it has found open cases of tuberculosis, to recommend that the municipalities should send these patients to an institution rather than to try to take care of them at home, for they can certainly be taken care of better in a well-equipped and operated institution than they can at home, and more cheaply, too.

We have been somewhat discouraged in this work, however, because of the facts, first, that there are so few institutions to which patients can be sent, and, second, because of the fact that such patients do not always stay at the institutions after we have sent them there.

Much has been said recently in the papers about the number of county sanatoria now in operation, one statement appearing to the effect that there were nine. As a matter of fact, there are only three county institutions in the state at the present time, namely: St. Louis County, Otter Tail County, and Ramsey County. St. Louis County Sanatorium is more than full, so that patients can only be sent from outside territory to Otter Tail County and Ramsey County, and both of these have but a limited space for such patients. Patients can also be sent to the Thomas Hospital in Minneapolis, which is a church institution. The State Sanatorium is not open for the care of these advanced cases, as it is primarily intended for incipient or early cases. Further, there is little prospect for much increase in oppor-

tunity for the care of tuberculosis in county sanatoria during the next few years. In all probability there will not be more than three such institutions opened this year, namely: Hennepin County, Goodhue County, and Clay-Becker County, the only three institutions whose plans have been approved. This statement should be modified by saying that plans for the sanatorium in Beltrami County have been approved, but the county has no funds available at present, and therefore the question of building it at present will have to be given up.

There is little satisfaction in going to great trouble on the part of State and local boards of health in sending patients to a sanatorium if they are not to remain there. Recently there have been at least five patients, open cases, that were sent to one institution, all of whom have gone from that institution back to their homes. In all of these cases much trouble had been gone to get the patients into the institution. In four of the cases the patients are back now living under the same conditions that they were prior to our investigation and instructions that they should be properly taken care of. The fifth, after she had returned to her home from the sanatorium to which she had been sent, was again followed up and sent to another institution.

#### TYPHUS IN SERBIA

Dr. Gorgas, the man who cleaned up the Panama Zone, has been called by the Rockefeller Foundation to go to Serbia, and take charge of the typhus situation. He is given full sway, and may use his own judgment and employ all the assistants necessary to clean up the country. He is a man who is generally appreciated for the work he has done, and particularly by the Foundation, for it gives him a salary of \$50,000 a year with a promise that after his work is completed, during the remainder of his life, he will be supplied with a sufficient income to maintain him independently. In the event of his death while attempting to control the epidemic, his family is to receive a large sum of money which will keep them in comfort.

About the time this offer was made to Dr. Gorgas, Dr. Harry Plotz, twenty-five years of age, a bacteriologist of Mt. Sinai Hospital, of New York City, discovered an antityphus vaccine, which is now being prepared and sent to the countries infested with the disease. As evidence of the reliability and the value of the vaccine, Dr. Wm. H. Welch, head of the Medical Department of Johns Hopkins University, has christened the toxin as "bacillus typhii exanthematicus."

Dr. Plotz had a hard time in presenting his new discovery. He isolated the germ which causes "Brill's Disease," and found that the bacillus is identical with that of typhus fever.



In his endeavor to present the subject before the American Medical Association, he was discouraged because he had previously given it to the lay press, or, at least, it had gotten into the lay press shortly after he made his investigation. Later, however, he was recognized, and read his paper before Eastern societies, and his researches have been accepted as reliable and scientific. If his vaccine does all that is claimed for it, Dr. Gorgas will find a new helper in the care of typhus fever. It seems that typhus fever requires very stringent measures to eliminate it. Everything that has come in contact with a typhus patient will necessarily have to be burned, and all localities in which typhus fever is prevalent will have to be burned over,—houses, grounds, and belongings. This will mean the destruction of a large number of homes in Serbia, but, doubtless, some way will be provided for the reconstruction and the rebuilding of homes for these people.

#### THE ANTI-AFFILIATION BILL—HOW IT PASSED THE SENATE

In a review of some of the work done by the last Legislature of Minnesota, we remarked that the above-named bill passed the Senate by a bare majority, "because the promoters of the 'Boxing' bill lent their support with the idea that the opposition to the affiliation would support the boxing measure."

It is felt by some of the friends of this bill that our statement implied that it was saved only because of a trade with the supporters of the obnoxious boxing bill. The Senate records show that supporters of the boxing bill voted for the anti-affiliation bill; and it is natural, in view of the rumors of general trading afloat that they *hoped* for support from those they had helped. We so asserted, but we did not say they were *promised* support, i. e., that trades were made; nor do we believe that many, if any, such trades were made.

The supporters of the anti-affiliation bill, of course realize that it passed by a small margin. They explain the fact by the withdrawal of support made by Senator Sägens, who was one of the introducers of the bill; and they further claim that he withdrew his support because of a mistake, he thinking that its object had been gained by the voluntary removal of all the objections to the affiliation.

We are always glad to make corrections in the interests of truth; but our readers should not forget that almost any general statement is likely to be misconstrued by some one.

## REPORTS OF SOCIETIES

### THE HENNEPIN COUNTY MEDICAL SOCIETY

A regular meeting of the Society was held in the Library Rooms, Donaldson Building, Monday, May 3d. President Farr was in the chair. Fifty members were present.

The following doctors were elected to membership: J. N. Hall, Henry W. Woltman, Fred T. Moersch, and Paul W. Wippermann.

Dr. N. Dreisbach presented a clinical case of calcified growth in the hand.

A letter was read inviting the members of the Society to become members of the Seventh Pan-American Medical Congress, which is to be held in San Francisco in June.

An appeal for assistance for the Southern French field hospitals in the war zone was made by Dr. Goard, who is here for the purpose of organizing aid societies to help in this work. A committee of five was appointed to take the matter up.

Papers were read as follows: "Estimation of Eosinophiles of the Blood in the Diagnosis of Lung Conditions," by Dr. T. A. Peppart; "Pneumonia at the City Hospital," by Dr. J. G. Cross; "The Open Method of Operation for Hemorrhoids," by Dr. J. E. Engstad.

Dr. A. T. Mann reported that \$1,200 had been raised for the aid of the Belgians, and that a ward called the "Hennepin County Medical Society of Minnesota Ward" is in operation.

The June meeting of the Society is to be in the form of a banquet.

S. R. MAXEINER, M. D., Secretary.

## BOOK NOTICES

STUDIES IN GYNECOLOGY AND OBSTETRICS. By Ellice McDonald, M. D. 103 pages, roughly illustrated, with flexible cover. New York: American Medical Publishing Co.

The few chapters presented by Dr. McDonald in this work are very interesting, well written, and worthy of consideration.

The chapter on "Sterility in the Female" reminds one of the fact that infantilism, maldevelopment, or lack of function, is the one great outstanding factor in sterile marriages, not gonococcal infection, as we are so apt to assume, forgetting that one child sterility is the usual sequence of Neisserian infection. Whether instrumental impregnation is of practical



importance, must remain, for the time being, a debatable question.

Dr. McDonald calls attention to the fact that in infantilism other signs or stigma of maldevelopment should be looked for, such as lobeless ears, high-arched palate, etc., which so often pass unnoticed.

A short chapter on "The Treatment of Fibroid Tumors With a Report of Seven Hundred Cases" gives a fairly complete résumé of the subject.

The new obstetrical forceps described by the author, while presenting some new features, such as shortening of the blades, are in no way a marked improvement over the standard instruments now in use. The chapter on "Diagnosis of Early Pregnancy," while presenting no new points, makes a plea for more thorough inspection and palpation as a means of diagnosis.

Other chapters, rather unrelated, need no comment. Some are in accord with the present-day teachings, while others are simply an expression of the author's personal observations and experience.

The closing chapter, "The Unsolved Problem," is a plea for better work, a more complete diffusion of knowledge, and thoroughness in statistics. The one great unsolved problem at this time is the question of puerperal infection.

—MOERSCH.

#### A TEXT-BOOK OF DISEASES OF THE NOSE AND THROAT.

By D. Braden Kyle, A. M., M. D., Professor of Laryngology and Rhinology, Jefferson Medical College, Philadelphia. Fifth Edition, Thoroughly revised and enlarged. Octavo of 856 pages with 272 illustrations, 27 of them in colors. Cloth. \$4.50 net. W. B. Saunders & Co., Philadelphia and London.

This revised fifth edition has many new and original articles i. e., Vaccine Therapy, Lactic Bacteriotherapy in Atrophic Rhinitis, Salvarsan in the Treatment of Syphilis of the Upper Respiratory Tract, Sphenopalatine Ganglion Neuralgia, Negative Air Pressure in Accessory Sinus Disease, Chronic Hyperplastic Ethmoiditis, etc.

The new chapter on tonsils is excellent and a number of other chapters have been brought up to date. There are several new illustrations and many of the old ones have been replaced by new ones. The book is all that it is intended to be, an excellent work for the student and general practitioner.

—WOOD.

THE INTERNATIONAL CLINICS, Vol. 1. Twenty-fifth series, 1915. Philadelphia: J. B. Lippincott Company. Price, \$2.00. Illustrated.

This volume of 300 pages contains brief and well-written articles on many subjects of interest to the practitioners, such as on the "Routine of Practical Vaccine Therapy"; "Physical and Electrical Therapeutics"; "Early Diagnosis of Paresis"; "Heart in Syphilis." It gives a general review of the progress of medicine for 1914, and reports of clinical lectures on surgery and medicine from well-known clinics.

"The International Clinics" is a publication of great help to those who desire to keep up with medical progress.

—ANDERSON.

PRINCIPLES OF HYGIENE. By D. H. Bergey, M. D., First Assistant, Laboratory of Hygiene, and Assistant Professor of Bacteriology, University of Pennsylvania. Fifth edition thoroughly revised. Octavo of 531 pages, illustrated. Cloth, \$3.00 net. Phila-

delphia and London: W. B. Saunders Company.

This is an excellent manual, giving the very latest information on every subject pertaining to hygiene.

—ANDERSON.

## NEWS ITEMS

Dr. J. F. Quinn, of Webster, S. D., has located at Waubay, S. D.

Dr. J. W. Foster, of Brookings, S. D., has located at Aurora, S. D.

Dr. W. F. Hutchinson died at his home in Minneapolis on April 24th.

Dr. J. W. Stribling, of New England, N. D., has moved to Amidon, N. D.

Drs. F. G. Aud and McKenna, of Rochester, have located in Lexington, Ky.

Dr. A. A. McLaurin, formerly of Wall, S. D., has located in Rapid City, S. D.

Dr. Jacob Biedermann, formerly of Argyle, will locate at Thief River Falls.

The City and County Hospital of St. Paul treated nearly twelve hundred patients in April.

Dr. Iver S. Benson, of Minneapolis, has joined the staff of Dr. B. J. Branton, of the Willmar Hospital.

Dr. C. P. Stockdale, of Erwin, S. D., has sold his practice to Dr. A. L. Amesbury, of Sioux Falls, S. D.

Dr. A. M. Wooster, of Hills, has located in Rockford instead of Sherburn, as reported in our last issue.

Dr. P. M. Holl, of Minneapolis, is spending a month in northern Minnesota that he may recuperate from a case of blood poisoning.

It is announced that the U. S. Public Health Service will probably make at an early day a health survey of the rural communities of Minnesota.

Dr. Kenneth Taylor, of St. Paul, is now in Paris, where he is the head of the pathological department of the American hospital for the wounded.

Dr. F. S. Wildner, of Rochester, is to locate in New York City, having completed a three years' course in the Mayo Clinic and received a Mayo Fellowship.

Dr. E. D. Spear has returned from Cuba to his home in Nome, N. D. Dr. S. A. Nesse, who has taken his place during the winter, will return to Enderlin, N. D.

Dr. D. V. Moore, of Yankton, S. D., was on the *Lusitania*, and underwent a trying experience. He assisted in the care of the injured when landed in Queenstown.

Dr. H. H. Hanson, of Milan, has purchased the practice of Dr. E. M. Howg, of Greenbush, who moves to New Effington, S. D., to take charge of the new hospital at that place.

The late Minnesota Legislature granted one-sixth as much money for diphtheria serum for the State's poor men, women, and children as was voted for cholera serum for hogs.

Dr. L. S. B. Robinson, of St. Paul, is to spend a year as Assistant Superintendent of the Minnesota State Sanatorium for Consumptives, to prepare himself for special work in tuberculosis.

The Minnesota Sanatorium for Consumptives at Walker had over two hundred patients in April. The completion of the pavilion for children has enabled the Sanatorium to care for all the patients on its waiting-list.

Dr. Charles Lyman Greene has resigned from the State Board of Health because he cannot give the time demanded of a member of the Board. He is succeeded by a layman, Mr. L. P. Wolff, of St. Paul, a consulting engineer.

The South Dakota State Medical Association meets at Aberdeen on the 19th and 20th instant. The program is unusually attractive, and every member of the Association owes it to the profession to attend the meeting if possible.

The Traill-Steele District Society of North Dakota met at Mayville last month, when the following were elected officers: President, Dr. E. C. Haagenzen; vice-president, Dr. J. G. Abbott, Hope; secretary-treasurer, Dr. Syver Vinje, Hillsborough.

The Aberdeen District Society of South Dakota held a meeting last month at Aberdeen. A paper was read by Dr. August Biel, Selby, on "Some Things I Know." Dr. R. L. Murdy, Aberdeen, spoke on "Asthma"; and Dr. I. J. Sampson, Mellette, exhibited X-ray plates.

Drs. H. S. Wilson and F. W. Schlutz, of Minneapolis, read papers at the meeting of the Kandiyohi-Swift Society held last month at Benson. The young ladies of the domestic science department of the Benson High School prepared a banquet for the members of the society. It was admirably done.

The meeting of the Tri-County Society of North Dakota was held at Carrington last month.

The meeting was given over entirely to business. The following were elected officers: President, Dr. I. D. Clark, Harvey; vice-president, Dr. John Crawford, New Rockford; secretary-treasurer, Dr. Vallancy, Fessenden.

Twenty-one county and district societies of Minnesota have voted upon the affiliation of the Mayo Foundation and the State Medical School. Seventeen of these societies, representing thirty-eight counties, voted against the affiliation; and four societies, representing five counties, voted in favor of such affiliation.

The Department of Sociology of the University of Minnesota has arranged to co-operate with State institutions for defectives, delinquents, and dependents, that the students of sociology may have the benefit of the study, and that the Department may assist, as far as in their power, the heads of such institutions.

Dr. Thomas S. Roberts, of Minneapolis, has been elected professor of ornithology and assistant curator of the biological museum of the University of Minnesota. Dr. Roberts is probably the best ornithologist in the Northwest. He will probably some day retire from the practice of medicine, and devote his whole time to University work.

The Mitchell District Society of South Dakota held its April meeting in Mitchell. The president's address was delivered by Dr. C. V. Templeton, Woonsocket. Dr. M. A. Stern, Sioux Falls, spoke on "X-Ray Therapy." Dr. H. W. Hartzell, Chamberlain, read a paper on "Food and Its Relation to Health and Disease"; and Dr. W. A. Delany, Mitchell, spoke on "Syphilis." A full discussion followed each paper.

The North Dakota State Board of Health held, last month, its first meeting under its new president, H. J. Linde, Esq., who is also the Attorney-General of the State. The Board voted to require that homes in which there are cases of measles and whooping-cough shall be placarded. It also voted to enforce the regulation requiring evidence of successful vaccination before children can be admitted to the public schools.

#### AN INVITATION

The Hennepin County Medical Society extends an invitation to all physicians throughout the Northwest to attend its annual banquet, to be held June 7, 1915. Several prominent eastern surgeons have promised to furnish the program, which will be announced in the next issue of THE

JOURNAL-LANCET. Those wishing to attend will please make reservations with the Secretary, 301 Reid Corner.

# PHYSICIANS LICENSED AT THE APRIL (1915) EXAMINATION TO PRACTICE IN MINNESOTA

## UPON EXAMINATION

Araouni, Khalil.....U. de St. Jos., Beirut,  
Syria, 1914

DuBois, Julian F.....Rush, 1914

Grave, Floyd.....Johns Hopkins, 1914

Meyerding, Henry Wm.U. of Minn., 1909

Patterson, Wm. L.....Boston, 1909

Westby, Nels.....Cornell, 1913

## BY RECIPROCITY

Burlingame, Clarence C. Hahncmann, Chicago,  
1908

Douglas, Frederick A...U. of Toronto, 1906

Dovre, Conrad M.....Marquette, 1914

Farrage, James .....U. of Louisville, 1911

Fitz, Erwin O.....Marquette, 1914

Fleming, Thomas N....Creighton, 1913

Ground, Holland T.....P. & S., Chicago, 1907

Hovde, Carl H. R.....Rush, 1908

Manahan, Charles A...U. of Iowa, 1908

Pfaff, Earl K.....Indiana Med. Co., 1906

Phillips, Albert E.....Hamline, 1907

Weinburgh, Harry B...U. of Illinois, 1909

## ASSISTANT WANTED

In general practice in Minnesota. Good proposition for the right man. Address 220, care of this office.

## PRACTICE FOR SALE

Physician's practice in unlimited territory. Excellent place for surgery. Address Box 204, Watford, N. D.

## LOCUM TENENS WANTED

Physician to take charge of my practice for six or eight weeks, beginning about May 15th or 20th, while I am away taking postgraduate work. F. K. Kolb, M. D., Granville, N. D.

## SURGICAL PRACTICE WANTED

I wish to buy a well established practice in a town of not less than 3,000 population. Would prefer one in which there is a hospital. Might consider the purchase of a hospital also. Can pay cash if desired. Give all details as to practice, surrounding territory, etc., in first letter. Address 214, care of this office.

## POSITION AS LOCUM TENENS WANTED

For four weeks during the month of June or July. Prefer a town with little or no competition. Am 30 years of age; can give best of reference; have had hospital training. Address 212, care of this office.

## OFFICE FOR RENT

I will rent for one year my fully furnished office, with half interest in reception-room, in the Lowry Bldg., St. Paul, to a responsible physician. Am to be out of the city, so will rent at bare cost. Address 222, care of this office.

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Well-established practice for price of office furniture, salaried appointment included. Minnesota county-seat; population, 4,000. Railway division-point, modern hospital, good schools and churches, good roads, good pay. Address 224, care of this office.

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An unopposed practice in an up-to-date town of 900 in Minnesota. Good school and churches, electric lights, city water and sewerage; fine berry and farming country; beautiful lakes; good railroads. Cash income \$2,500.00; collections good. Small amount will handle the deal; an exceptionally good place. Address 223, care of this office.

## PRACTICE FOR SALE

One of the best locations in Minnesota. A fine city and country territory. Rich and large, thickly settled; mixed nationality. Two doctors in city. A fine residence with all modern conveniences, automobile, horse, and buggies optional. Price right. A doctor who is competent and willing to work can surely make good. If I sell I am going to California. Address 216, care of this office.

## PRACTICE FOR SALE

Property for sale or rent. In southern Minnesota. Physician's beautiful ten-room, modern home and office, and garage in very prosperous town. Two railroads, fine school and churches; thickly settled German-Norwegian country; two towns without doctors. Practice, \$4,500, can be increased by office work and surgery; collections 100 per cent; thorough introduction. A rare opportunity. Address 217, care of this office.

## EQUIPMENT FOR SALE

The following at your own price: Sinusoidal and Galvanic plate, Kellogg's, cost \$120; electric light bath cabinet, Kellogg's upright, sells for \$350; Oxyoline machine, Neal Armstrong, four-patient, cost \$550, used three months; portable high frequency outfit and massage tables. Will consider any reasonable offer for all or any part of above. These are all practically new. Am specializing in other work and have no use for these things. Address 221, care of this office.



REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Fuerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	4	1													1	
Albert Lea	4,500	6,192	7						1								1	
Alexandria	2,681	3,001	2			1												
Anoka	3,769	3,972	1															
Austin	5,474	6,960	9			1	1										3	
Barnesville	1,326	1,353	0															
Bemidji	2,183	5,099	6		2							1						1
Benson	1,525	1,677	5		1	1												1
Blue Earth	2,900	2,319	4			1												1
Brainerd	7,524	8,526	11	1													1	2
Breckenridge	1,282	1,840	1															
Canby	1,100	1,528	0															
Cannon Falls	1,239	1,385	1															
Chaska	2,165	2,050	2				1											
Chatfield	1,426	1,226	0															
Cloquet	3,074	7,031	3															
Crookston	5,359	7,559	8	2		1										1		1
Dawson	962	1,318	1													2		1
Detroit	2,060	2,807	7	1		3												
Duluth	52,968	78,466	77	4	1	11										3	11	4
East Grand Forks	2,077	2,533	3	1														
Ely	3,572	3,572	1															
Eveleth	2,752	7,036	3			1												
Fairmont	3,440	2,958	1			1												
Faribault	7,868	9,001	6		1	2										1		1
Fergus Falls	6,072	6,887	6			1											1	
Glencoe	1,788	1,788	1														1	
Glenwood	1,116	2,161	4		1	1											1	
Granite Falls	1,454	1,454	1															
Hastings	3,811	3,983	3			2												
Hutchinson	2,495	2,368	2															
International Falls		1,487	6			1									1	2		1
Jordan	1,270	1,151	0															
Lake City	3,142	3,142	3															1
Le Sueur	1,937	1,755	1															
Little Falls	5,774	6,078	7			2												
Luverne	2,223	2,540	3															
Madison	1,336	1,811	2															
Mankato	10,559	10,365	14			2											1	
Marshall	2,088	2,152	3															
Melrose	2,591	2,591	0															
Minneapolis	202,718	301,408	356	35	8	52	5	1							3	9	17	15
Montevideo	2,146	3,056	6			1			1									
Montgomery	979	1,267	1												1		1	
Moorhead	3,730	4,840	6	1		1									1			
Morris	1,934	1,685	4															
New Prague	1,228	1,554	0															
New Ulm	5,403	5,643	13	2													3	
Northfield	3,210	3,215	7		1	2		1										
Ortonville	1,247	1,774	2															
Owatonna	5,561	5,653	9			2												
Pipestone	2,536	2,475	2													1	1	
Red Lake Falls	1,666	1,666	1	1														
Red Wing	7,525	9,048	4	1													1	
Redwood Falls	1,661	1,666	2															
Renville	1,075	1,182	3			1												
Rochester	6,843	7,844	38	2	3	1											7	2
Rushford	1,100	1,011	3	1														1
St. Charles	1,304	1,159	2															
St. Cloud	8,663	10,600	11	2		2										1		
St. James	2,102	2,102	5														1	
St. Paul	163,632	214,744	241	17	6	38	4	4	1				1	2	5	23	1	5
St. Peter	4,302	4,176	1															
Sauk Centre	2,154	2,154	2		1													
Shakopee	2,046	2,302	2														1	
Sleepy Eye	2,046	2,247	4														1	
South St. Paul	2,322	4,510	7			5												
Staples	1,504	2,558	2															
Stillwater	12,318	10,198	16	1			1										3	1
Thief River Falls	1,819	3,174	3	1													1	
Tower	1,111	1,111	1			1												
Tracy	1,911	1,826	1															
Two Harbors	3,278	4,990	2															
Virginia	2,962	10,473	4															
Wabasha	2,622	2,622	2		1												1	
Warren	1,276	1,613	1															
Waseca	3,103	3,054	5															
Waterville	1,260	1,273	1														1	
West St. Paul	1,830	2,660	3														1	
Willmar	3,409	4,135	3	1														
Winona	19,714	18,583	20	4		2	1											
Winthrop	813	1,043	1															
Worthington	2,386	2,385	1														1	

## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	0															
Aitkin	1,719	1,633	2			1												
Akeley			0															
Appleton	1,184	1,221	1															
Belle Plaine	1,121	1,204	0															
Biwabik		1,696	0															
Bovey		1,377	1															
Browns Valley	721	1,058	3															1
Buffalo	1,040	1,227	1															
Caledonia	1,175	1,372	2	1														
Cass Lake	546	2,011	1														1	
Chisholm		7,684	5		1													
Coleraine		1,613	2															1
Delano	967	1,031	2			1												
Farmington	733	1,024	2			1												
Fosston		1,055	1														1	
Frazee	1,000	1,645	3			1												
Grand Rapids	1,428	2,239	3			1												
Hibbing	2,481	8,832	15	1	1	5												1
Jackson	1,756	1,907	2												2			
Janesville	1,254	1,173	3						1									
Kenyon	1,202	1,237	3															
Lake Crystal	1,215	1,038	2			1										1		
Litchfield	2,280	2,333	4			1			1									
Long Prairie	1,385	1,250	0															
Madelia	1,272	1,273	4			2												
Milaca	1,204	1,102	1													1		
Mountain Lake	959	1,081	1															
Nashwauk		2,080	1															1
North Mankato	939	1,279	0															
North St. Paul	1,110	1,404	1															
Osakis	917	1,013	2															
Park Rapids	1,313	1,850	4						1									
Pelican Rapids	1,033	1,019	0															
Perham	1,182	1,376	0															
Pine City	993	1,258	0															
Plainview	1,038	1,175	2			1												
Preston	1,278	1,193	1															
Princeton	1,319	1,555	3															
St. Louis Park	1,325	1,743	4	1											1			
Sandstone	1,189	1,818	2	1														
Sauk Rapids	1,391	1,745	2	1												1		
South Stillwater	1,422	1,343	0															
Springfield	1,511	1,482	0															
Spring Valley	1,770	1,817	4			1										1		
Wadena	1,520	1,820	1															
Wells	2,017	1,755	1															
West Minneapolis	2,250	3,022	6															
Wheaton	1,132	1,300	2	1												1		
White Bear Lake	1,288	1,505	2															
Windom	1,944	1,749	2			1												
Winnebago City	1,816	2,555	0															
Zumbrota	1,119	1,138	1	1														
STATE INSTITUTIONS																		
Anoka, Asylum			2			1												
Faribault, School for Blind			0															
Faribault, School for Deaf			0															
Faribault, School for Feeble Minded			6	1		1												
Fergus Falls, Hospital for Insane			10	2		1								1				
Hastings, Asylum			3															
Minneapolis, Soldiers' Home			7			1												
Owatonna, School for Dependents			0															
Red Wing, State Training School			0															
Rochester, Hospital for Insane			8															
Sauk Centre, Home School for Girls			0															
St. Peter, Hospital for Insane			4	2														
St. Cloud, State Reformatory			0															
Stillwater, State Prison			1	1														
OTHER PARTS OF STATE			787	44	10	100	6	8	7		5			2	27	51	8	33
Total for state			1949	136	38	267	18	15	12	0	5	1	1	11	59	143	12	73

\*No report received. Registrar not doing his duty.

114 stillbirths not included in above totals.

# A Tonic with Food Value

You will find in Malt-Nutrine valuable tonic properties due to the aromatic bitter principles of Saazer hops. You will also find the **food** value of more than 14 per cent. of pure malt extract. The ingredients of Malt-Nutrine are carefully and properly chosen to constitute a real food-tonic and are combined through scientific processes under the direction of competent chemists.



ANHEUSER-BUSCH'S  
*Malt-Nutrine*  
TRADE MARK.

is the recognized standard of medicinal malt preparations. It is extensively prescribed by physicians as a food-tonic for nursing mothers, protracted convalescence from acute diseases, insomnia and many other conditions. Do **not** confuse it with cheap dark beers.

Pronounced by the U. S. Internal  
Revenue Department a

**PURE MALT PRODUCT**

and not an alcoholic beverage.

**ANHEUSER-BUSCH,**

**St. Louis**



## PUBLISHER'S DEPARTMENT

### GLYCO-HEROIN

Messrs. Martin H. Smith & Co. have given assurance to the profession that their Glyco-Heroin does not have to be changed to meet any of the exemptions or privileges of the "Harrison Anti-Narcotic Law." It is a stable and dependable remedy for cough, bronchitis, whooping-cough, etc., and is prescribed by physicians only. It is a pleasant, efficient, and safe remedy, with a formula that no scientific prescriber will object to.

### HYGEIA SANITARIUM, CHICAGO

Under the special care of Dr. Wm. K. McLaughlin, medical superintendent of the above sanitarium, every patient receives the benefits of the Lambert-Towns treatment, a recognized scientific method, which obliterates the cravings for drugs or alcohol. Dr. McLaughlin is anxious that physicians accompany their patients and see for themselves just what this method is doing. When cured the patient is referred to his own family physician for any further observation.

### PUFFED FOODS HAVE SOLVED A PROBLEM FOR THE PHYSICIAN

Physicians will be interested to note that the Quaker Oats Company has increased its use of space in medical journals recently. This is a wise policy on the part of a manufacturing concern whose product has a medical appeal. For many years such manufacturers as the Welch Grape Juice Company have made the most of the opportunity offered by the medical journals, but the Quaker Oats Company has been slow to do itself justice in this field.

The patented puffed foods of the Quaker Oats Company really offer the doctor a great assistance in making sure of suitable foods for patients with delicate digestions. These foods, Puffed Rice, Puffed Wheat, and Corn Puffs, are not merely novelties in the breakfast food world. They have two emphatic recommendations. First, they are practically the whole grain, with none of the nutrition removed. Secondly, every food granule is exploded, blasted to pieces—and also toasted through and through—rendering digestion quick and easy by even the most delicate stomach. That is from the medical standpoint. From the everyday standpoint there is the tempting taste. And doctors know how necessary it is to tempt appetite, at times.

### SCHERING AND GLATZ

When colchicum and its derivative preparations were the only choice in the effective drug treatment of gout and diarrhea, cardiac by-effects and the many other drawbacks of this therapy were necessary evils. Nowadays its Atophan and results are safe. For while in these days of well-founded

therapeutic conservatism, one hesitates to number any of the newer drugs among the specifics, Atophan may well be hailed as such in gout, after four years of universal test. Its supremacy in this disease has not only been clinically irrefutably demonstrated, but also provided with a very logical scientific understructure by several American and foreign pharmacologists of note, whose investigations have in turn shed much new light on that erstwhile prolific field of guess work—the pathology of gout.

Since the only actual contraindications to Atophan therapy are chronic digestive and pronounced kidney affections, especially the presence of renal concretions, its great benefits need not be withheld from anybody under any other circumstances (age, complications, etc.). Atophan can be confidently placed in the hands of gout patients who, as is well known, can fairly accurately foretell the onset of the acute attack and can abort, or materially palliate it, by a timely start with this medication. Atophan should always be taken before the attack and periodically, after it is over, but never while the attack is on.

### BACILLUS BULGARICUS

Every well-read physician knows the dietetic and health-giving value of Bulgarian buttermilk, or Yog-hurt, which the Bulgarians have made an important part of their daily food for hundreds of years. It is, however, only in late years that such men as Metchnikoff have discovered why this product of the East has so great value. It is due to the fact that it overcomes or prevents the toxic decomposition common in all intestinal disturbances, especially in children and weak people. It thus helps nutrition in a marked degree, and restores tone to the whole system.

Yog-hurt is made from whole sweet milk by adding the bacillus *Bulgaricus*; and it is rare that a person, sick or well, is found who does not like it. In fact, it is an inexpensive and delightful drink.

The living cultures of this bacillus are essential, indeed indispensable, to the manufacture of a perfect Bulgarian Yog-hurt. Much of the commercial bacillus is so old as to be valueless, and for this reason many physicians will not prescribe it.

Minneapolis now has a company that guarantees its Bulgarian bacillus to be absolutely pure and living; and this company is worthy the confidence of the profession. Dr. Carl Lauritzen, late of Helsingborg, Sweden, who has been in this country for some months making arrangements to market the product, at the completion of which he will leave for Copenhagen, Denmark, and his brother, Peter Lauritzen, well and favorably known to the Minneapolis profession, as Dr. Lauritzen, for years the medical director of the best Swedish movement institute ever established in the Northwest, and later the organizer and head of the Lauritzen Malt Company, have organized the Bulgarian Yog-hurt Company, with headquarters at 716 Andrus Building, Minneapolis.

We feel sure the firm will never abuse the confidence of medical men, whose attention they call to their imported product.

# THE JOURNAL- LANCET

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## THE HEALTH OFFICER'S DAILY MAIL: WHAT IT SUGGESTS\*

By OSCAR DOWLING, M. D.  
NEW ORLEANS, LOUISIANA

Mr. President,—Your kind invitation to be present at this meeting was received at the end of an unusually hard day. There had been a surfeit of mail, stacks of letters in each delivery, and, because of interruptions, no time to dictate replies. Yours was the last to be opened. I glanced at its contents, thought of the many and varied problems suggested by the many letters before me and felt that a "timely utterance" would give "relief." This is the history of my choice of subject, "The Health Officer's Daily Mail: What it Suggests."

In general, the most trying aspect is that, like the proverbial "poor relation," the mail is always with us. No matter how conscientiously or carefully it may be differentiated or "referred," something remains to be "looked up" or "run down." In vain the heroic effort to "clear up"; and before it is accomplished the postman is at the door with a new budget.

For the purpose of discussion, miscellaneous mail may be classified as complaints; questions; requests; criticisms, adverse and otherwise; applications; threats; appeals; and advice.

I do not know whether it is so in all states, but in Louisiana there is a full quota of complaints, some foolish and spiteful, some sensible, many sincere, and many quite helpful. These letters run the gamut of insanitary conditions and reprehensible unhygienic practices generally—of our neighbors. They range from condemnation of the parrot next door, with its swearing proclivities, to denunciation of a board of health

which carries "germs" in a "health car." A hair in the hotel butter, a sandy chicken gizzard in the restaurant gumbo, or a mouse baked in rolls, is sure to be straightway reported to the office of the State Board, which is pronounced derelict if the offender isn't fined within twenty-four hours. We receive many complaints like this:

"My wife bought a quart of milk, and she want to make oyster supp; it turn to clabber; she try a quart again and it turn again. I forbid my wife to buy no milk from none of thoes milk manufactory; it is time for you all to wake up. Yours respectfully . . ."

Many of the writers are ignorant but sincere, and many state in very few words a complex situation. I have in mind two complaints which, investigated, proved to be correct in fact, and exact as to interpretation of motive:

"Five miles from the railroad in the B— Swamp is a settlement where very little law and order is respected. There are at least 500 workmen employed, one-half of whom board at a hotel operated by the company. The bosses have all their buildings, horse-stables, and some chicken-coops screened, but the screen at the hotel is rent and not repaired because operations will be moved to other quarters in a few months. Not that I am sulking because I have to eat meals at the mercy of a few thousand flies and mosquitoes, but because the company will put up a settlement similar to this one where about 600 men will be employed in a few months, and I think that an investigation into their most unsanitary condition will make them take precautions when the health of 600 men is concerned. I appeal to you in the name of men who are afraid to kick for fear of losing their jobs to investigate. . . ."

"Will you kindly examine camp called Doc M— Hay Camp, six miles up the bayou from F—? You will find the conditions in an unhealthy manner. Doc M— has about forty men, whites and negroes, all told. His bunk-house, kitchen, and mess hall is in a small

\*Invitation address, read before the Minnesota State Medical Association, October 1, 1914.

shack, say 45 feet by 18 feet combined. Men gamble, lay on the floor to sleep all night; they are filthy boisterous; they all huddle in the shack all night in order to keep the mosquitoes from eating them up. The slops from the shack are thrown in the bayou and around the shack. The food is something fierce, consisting of salt meat that is spoiled. The potatoes are very wormy; the East for Bread is so old that it will not raise the flour, no vinegar, no sugar, no molasses, no vegetables, no beef, no pork, no mutton, no Goat meat, no can goods, no eggs, no Butter, no soap, no water but Bayou water that is Black, over grown with weeds and Rubbish. I was employed as cook for the camp. I came away as soon as I could come away from ——— camp of starvation and cruelty to the Human Being. Conditions are very bad . . ."

These camps were disgracefully bad, and the endurance of the men tried to the utmost. The land-owners of Imperial Rome found it cheaper to wear out captive slaves than to take care of them. In the year of grace, 1914, evidently, there are economists of the same type.

The most numerous of all letters are those which ask information. It would seem no subject escapes. "Why does a baby cry? What will a water-plant and sewer-system cost? Who discovered a cure for cancer and when? What disinfectant is best? When are oysters fattest? What do farm lands cost? How far can a flea jump? Can a man live on potatoes? What is a marriage health certificate? How and when should sex hygiene be taught?" And so on. Here is one in full:

"Notwithstanding a new coat of varnish work on the inside of our saloon, there shows a moisture on the lower part of the wall and all over the ceiling. Our business place is on high ground, therefore we cannot see the reason for this. Would you kindly suggest to us a remedy. Is it may be the cause of a cheap grade of varnish? Please give us your advise in enclosed envelope and oblige . . ."

One physician writes, "What can I do with a pellagra patient?" Another, "How can I be sure a child has hook-worm?" A canny layman says, "Why don't you inspect the doctors' offices and go after them like you do the barbers?" An ambitious young man, "Where can I be trained for health work?" Another, "Can you buy me a second-hand microscope and send instructions how to use it?" Perhaps, wildest of all, "What per cent of insanity is caused by smoke from automobiles?"

These are illustrations. In addition, every day, interpretation of law is asked for, the duties of local health officers and health boards, not always by the officers themselves, but by interested citizens. Questions pertaining to legality of optometrists, of chiropractics, of science healers,

are a constant quantity. They call for definite, positive replies, sometimes a difficult task. On the subject of food there is much confusion. Hazy notions of the national regulations and state laws give rise to innumerable comments and inquiries. In reply lengthy explanations supplementary to printed instructions are often necessary.

Calls for help are gratifying. They are always urgent, and the writers impatient of delay. "For humanity's sake do send an inspector to the town of ——" "We, the undersigned, feel it a duty to tell you the local board will do nothing. Send one of your inspectors at once." Ten signatures proved the good faith of the citizens of this village of 300 people.

"Please send one of your men to inspect the rear premises of the man who lives next to us—he is a doctor."

Everything in the catalogue relative to assistance for the afflicted is asked. Criticisms come not singly, but in battalions; it goes without saying the adverse lead. The Board is censured for every possible shortcoming, whether within its purview or otherwise. Forty thousand dollars (two cents per capita) is entirely sufficient, in the minds of some, to provide everything hygienically needful. Of course, we are "grafters," and we "ride in an automobile" and in a "private car." We make people and towns "clean up" because we can, and we "condemn milk and other food" to get "in the paper."

There are many who appreciate the work which has been done and that which is now in progress, and occasionally some one writes a note of encouragement. As compared with those who find fault they are few, but that is logical. The man who has a grievance will take the trouble to write, but the man who is pleased takes it for granted your reward is in well doing. It is fortunate that we get adverse criticisms; they imply that the regulations are being enforced, and they are sign-posts along the way toward further progress.

Applications are numerous. Desire to get a job seems to be considered sufficient qualification, as many applicants have none other. It seems universally conceded that any one can be an inspector, and that connected with the Board of Health office are innumerable mysterious clerical jobs which any untrained man can fill satisfactorily.

Among the most interesting letters are those which come in reply to inspectors' reports. A single example will suffice: "Yours of resent



date and contense noted and notice I had been reported, will say my store and bedroom is in as good sanitary condition as any in this place. Yours respectfully, ———.

"P. S. Please give me some idea of how to exterminate rats and bedbugs."

Letters which would be humorous if they were not so pathetic as signs of ignorance are received in bunches by the Bureau of Vital Statistics.

As we are putting into effect a system by which postmasters are appointed registrars, we have hundreds of correspondents to whom birth and death registration is most inscrutable. The naïveté of their letters is refreshing, though it adds to our perplexities. One man says: "I can't see no reason for these questions. John Blank died a natural death. Nothing at all the matter with him, as any one knows, and he was buried. Never had no doctor."

A woman registrar says: "Mrs. — has no name for the baby; it is just called 'baby'—will that do? If not, I'll have to name it."

One new satisfied worker writes: "I have five certificates to send this time. Three births and two deaths, all from district 3016. Everything is rounded up nicely and moving on well. I love this work and hope that I have done it right and that it will please the Board of Health."

Many letters of this character are received, and filed with the historical records that the future historian may have an insight into the "dark ages" of sanitation.

Appeals come for help in many things, but especially to withhold the execution of the law. One agitated lady writes, please not to take away her cats. She knew we were "too busy to read long letters" (hers was eight pages), and she knew we were too busy to attend to private complaints, but she had heard pets were to be abolished. Hers "are good cats, nice cats"; they are company for her; couldn't we strain a point to let her keep them? It was a pleasure to write that she need not be disturbed, the cats were safe. It is not uncommon for health officers to submit their troubles. Recently, smallpox developed in a community of 3,000. The local man used all available funds, and asked for more. The mayor said they had none and couldn't raise any; that the State Board of Health should assist. The mayor didn't know the law; the health officer did, and wired us to take charge. We did so, and when the first bill was presented with legal proof that the town must pay, they promptly asked us to withdraw saying they would take charge of their own epidemic.

It was in this same parish that another officer got into dire straits. He had a number of negroes in a detention camp. One night a woman died in the camp; next morning there wasn't a darkey left. The officer wired: "All suspects and convalescents are gone. What shall I do?"

Advice is a constant factor. We are given specific directions concerning what the health-cars should do, about the conduct of inspectors, the manner of keeping records, and, in fact, every detail which happens to appeal to the mind of the observer.

Threats are not uncommon. "You better look out and not prosecute Mr. Blank." He can "put you out of business." "He stands in. Your job is in his hands." Sometimes dynamite is threatened; and now and then a fake "black hand" letter arrives. As we have never had an unpleasant experience in any section of the state, these threats do not weigh heavily.

If you are a physician in active health work, the contents of the postman's bag is an old story.

Though interesting, often trying, sometimes amusing, the mail itself, as a part of the daily routine, is of less import than what it reveals. It is a fair index of the limitations and defects of the work.

Most significant are the complaints and requests concerning local conditions. Eliminating those which may be considered simply spiteful or personal, there are sufficient to indicate the dire need of better local organization and local service. A few years ago in the public mind, the health officer was coupled with the yellow flag and armed guard—signs of quarantine. Health officers and health boards were appointed automatically as, in the event of an epidemic, they were supposed to be necessary. In general, communities went no further. A few made haphazard attempts at special features of sanitation, the effort being determined by the fad of the dominant member of the city council. The idea that a competent man could probably give his whole time to the work of protecting the health of the citizens had not yet dawned.

The present shows some advance, but, unfortunately, apathy and ignorance yet obtain. The people are not convinced that health is purchasable; there is no demand on the part of the public for conscientious, persistent, intelligent work. The policeman may act as milk inspector, the marshal as director of garbage-collection, or market-inspector. The law in Louisiana requires

that the health officer be a physician; the compensation, except in a few places, ranges from nothing to fifty dollars a month, by far the greater number receiving about twenty-five. He is the only sanitary officer regularly employed. If he is conscientious and makes an effort to enforce the code, his practice dwindles. Often it is his best friends upon whom his wrath should fall, and he hesitates. If he can not prosecute them, he can not invoke the arm of the law against others, so the community endures dirty streets, the people consume contaminated food, and the children die from disease-laden milk.

Without sufficient remuneration, it is futile to hope that capable men will undertake the work; they cannot afford it; those who make the attempt, do so because they feel that something done is better than nothing. At a meeting of parish physicians in ——— Parish last Thursday, the doctors from every point stated in emphatic terms that a health officer could not do his duty and make a living by general practice.

If, as in some instances, city appropriation makes possible a living salary, the question of politics enters. Applicants spring up as if "dragons' teeth had been sown"; the man who has the "pull" gets in. If he desires to continue to hold his position, he must discriminate and favor those whose "influence landed him," and this precludes effectual service.

The relation of the State Board or State Commissioner to the local unit is of interest. Effort was made this spring in Louisiana to have the Legislature pass two laws. These would have given the State Board the authority to mandamus a council or police jury which neglected to appoint or elect a health board and a health officer; also power to bring to trial, under certain restrictions, officers found flagrantly derelict. The bills were postponed indefinitely as we knew beforehand they would be. The public is not ready to pay the piper, nor to make him dance.

The ineffectiveness of the present system is registered daily in letters of criticism, of complaint, of protest, of appeal. We "refer" these to the constituted authorities—where they exist—with an apology to ourselves, knowing that generally nothing will be done, and accept as a matter of course censure for neglect of duty. Whenever it seems wise, we undertake ourselves to investigate; we give due notice and follow this with legal procedure. But with a limited force we can do this in so few instances they prove only warnings and not remedial measures.

To await the growth of a sentiment which

will demand excellence in service is very discouraging. To hasten the day by education of the public seems the only safety-valve for impatient zeal.

Intelligent inquiries concerning rules and regulations of the code and the statutes in their application give evidence of confusion and complexity in the laws which should not exist. In our own state, the Board of Health is empowered by an act of the Legislature to pass resolutions; these form the sanitary code, which is the sanitary law.

Twice attacked, the supreme court has twice rendered a decision in favor of the constitutionality of the law. Apparently, then, there is no reason why the sanitary regulations should not be simple and adequate, but instead the code contains many repetitions and is often found wanting.

At quarterly meetings of the Board, revisions, amendments, and additions are made. These meet the exigencies, but add to the complexity. In 1911, the code was revised. At that time we had an attorney, but the salary paid him was not adequate, so he gave us only a portion of his time; hence, the revision of the code was superficial. At the meeting of the Legislature in 1912, an act was passed which abolished special attorneys for all boards. Since then, in common with others, we have had to rely upon the help of the Attorney-General and his assistants. While these officials have given liberally of their time, they are far too busy to undertake any work which requires long-continued effort. A few months ago I asked the Assistant Attorney-General when he could help us revise our code. His answer was not encouraging, as he said: "Doctor, that would take six months of hard work; you know it would be worth \$5,000." With this as an outlook we are likely to have to tackle the job ourselves with perhaps no better result than the satisfaction of having made the effort.

I give our code as an example of the confusion which may arise in the making of laws even when authority is full and free. Much more is this true in the states not so fortunate as Louisiana. No one doubts there would be an advantage to health officers and to the work if there could be uniformity in fundamentals and conformity in such other regulations as could be adapted to states in groups. The rat-proofing ordinance recently drawn up for the City of New Orleans is a case in point. It has

been a source of dissatisfaction to the public and antagonism toward the public health authorities; likewise, and to a greater degree, the chicken ordinance which has been three times submitted, and is yet unsatisfactory. Complaints are loud and deep. Should bubonic plague appear in any other coast city, there will be the same struggle by the authorities to frame laws and the same outcry against them. Whether the New Orleans ordinance is feasible, practical, and reasonable, experience will show, but had it been drawn up by a number of sanitarians representing different states, it is reasonable to suppose that it could have been made applicable and acceptable to every city in the South.

This incident is used as an illustration; the same conclusion will hold good for any regulation of importance. There should be a clearing-house for criticism and framing of laws. The idea is not original; it was suggested by Dr. F. R. Green, of the American Medical Association. Doctor Green's argument is that many laws are crudely drawn and hastily passed; and many are simply "freakish." Health legislation for the past six years gives ample evidence of the truth of the statement. Laws on regulation of the marriage health certificate are examples. For many reasons they were dead letters from the first, one being the lack of machinery to enforce.

We hope by elimination and classification to make the code of Louisiana simple and intelligible to any person of ordinary education. By the same method a committee or council could digest, condemn, and approve laws which are needed in the several states. By this means satisfactory advance in practical health legislation would be made; the present confusion would not exist; and progress would be permanent.

From four years' experience in actual health-work, I am convinced that improved local service and lucid, adequate, pertinent laws are the two fundamentals upon which effort should be centered. According to our present system each community, for its own protection, must depend almost wholly on its local board and local officials. The State Department also is dependent on this local body and its executive officer.

In constitution, state and local boards are identical; in authority, in respective jurisdictions relatively alike; it follows that in the activities of both the same principles obtain. Within a decade there has developed an increasing demand for independence of public officers, and selection on

a basis of merit. While only a beginning has been made, its effect is apparent.

In health-work a policy of sincerity, honesty, and impartial application of the law is absolutely essential. Every detail of the daily routine and every phase of the larger activities involve these principles as fundamental. The hot tamale man or the street vendor of muffins is as much entitled to conscientious consideration as the proprietor of the — Hotel; the owner of the smallest dairy, equally with the millionaire or the sulphur mines, has a right to a careful review of his complaint and an unbiased judgment. In no other line of public service is there such opportunity for discrimination. Insidiously it may arise many times in one day, perhaps in the orientalism of the Chinaman, who brings diamond cuff buttons as a gift, the Greek who would kneel to beg permission to open his dirty shop, or the politician who would buy release for a friend with an offer of political influence. To meet many such temptations an officer must be a free man with an honest purpose, and not the tool of any party or faction.

The State Board of Health itself, and through its executive, is a court of original jurisdiction and a court of appeal. Moreover, its purview includes jurisdiction over the affairs of many citizens most important to their welfare. Like all courts, it should decide each case on its merits, and temper justice with mercy only when sure of the premises. This to my mind is alone a sufficient reason for freedom from political thrall-dom. We have now a number of trade waste problems. In one case, a company has a new plant which comes as near as is possible making something out of nothing; saw-dust put through a process produces alcohol, and is then returned to the mill apparently unchanged. This plant gives employment to a large number. It means prosperity for that section where it is situated. For two weeks we have had our chemist and sanitary engineer at work examining the bayou banks and the water. Shall we give the report in full, and demand, possibly, expensive improvements? Do you see how it might be an advantage to suppress it? We do not wish to discourage the capitalist who, by investing his money, has become a benefactor to this territory, yet we must protect the public. This is only one of our many problems which involve rich and powerful corporations.

The health administrator, local or state, cannot be true to his trust if he must accept associates or employees at the bidding of those who



do not know the demands of the work. While in the various departments duties are relatively important, it is imperative that each person do well that which is assigned. For excellence of service it is relatively as necessary that the man in charge of our exchange be as intelligent and polite in his replies over the phone as the executive in his judgment in the choice of the next forward step for the welfare of the State. Every one, associate or employee, disloyal, derelict, subservient or unworthy, lowers the tone of the whole. Honest mistakes can be condoned, but a low standard of service is inexcusable and unpardonable, and, let me insist, reprehensible, most of all in the health department, whether state or local.

The State Board of Health is a clearing-house for redress of grievances; it should be so organized and conducted as to insure confidence. This can be secured only by the strictest adherence to the highest standards. Local boards, having, respectively, the same relation to the community as a unit and to individuals as the State Board to its constituents, should be organized and conducted likewise with independence of all those whose influence might suggest or necessitate favoritism.

I am cognizant of the power centered in one body of men or in one man which this attitude implies. In fact, often, when I review the work, I am appalled at the rulings of one day, and what they may mean to the individuals or communities concerned—a hotel is closed, a restaurant is ordered cleaned, the water supply of a city is condemned, a jailor is told to remove the prisoners and clean the jail. As the office files are open to all, the ever-present reporter makes a crack-a-jack story which is run in box-car letters. Do these orders work a hardship—are they justifiable? For reply to the first we have no data. The second answers itself: if public protection is involved the individual who ignores the law must suffer.

As publicity is a mooted point, it may be well to digress for a moment. Undoubtedly, publicity hits hard. In some cases it seems too drastic, but, in my judgment, the health department on this subject has no discretion. Secrecy as a policy, tacitly understood or openly acknowledged, is the bane of honest administration. Its results are apparent in waste of funds, in employment of the inefficient, in abuse of authority. I believe, in our experience, the policy of giving to the public records of all inspections and other reports and of speaking frankly to a community of its defects, has brought greater results in

improved conditions than anything else attempted.

To go back to our friends, the letters, for a moment: Their various demands emphasize our need of freedom from influence or obligation. The confidence shown places on us a heavy burden: We must be worthy; the assistance asked must be given with an eye single to the public welfare and the good of the individual who makes the appeal. That we may establish a standard, we must place our own high; that we may get effective work, we must set the example. Every letter must be answered promptly; and whatever the demand it must be met as far as possible.

The postman is often unwelcome; his budget often means no golf, no fishing, no holiday, but instead a digging up of forgotten laws, or an hour of misery with the complexities of the code, but the contents of his bag keeps us humble as to our usefulness, and grateful for our opportunities.

It goes without saying that I am greatly pleased to be your guest this evening and that I feel greatly honored in having received your invitation. I knew it would be quite worth while to travel almost across the continent to meet you, and I wish to confess that the "daily mail" was seized upon as an excuse to enjoy a visit which I knew would be both pleasant and profitable. I am well aware of how far ahead of us you are in all health activities; therefore, in accepting your kindly invitation I quite understood that the pleasure and the profit to be derived from the meeting would be wholly mine. For your thoughtful and cordial courtesy I wish to again express sincere appreciation.

#### DISCUSSION

DR. H. M. BRACKEN: The conditions that Dr. Dowling has described in Louisiana do not differ from those in Minnesota. The doctor thinks there should be a clearing-house for criticism. The Minnesota office is now serving as such a clearing-house, including criticisms on the health-officer. I have often referred to my office as the clearing-house for kickers, and I really think the description Dr. Dowling has given of his experience would put his office in the same category.

Dr. Dowling has referred especially to industrial camps as deserving of criticism. We have such camps in Minnesota. Some are good, some are bad, and some are simply intolerable. I do not know that our conditions are worse than those in Louisiana. In Minnesota we are helpless because we have no proper law relating to these camps.

The doctor has referred to the examination of foods. In Minnesota this work is under the Dairy Food Department. With reference to a physician practicing without a license: This too is under a special board, and we have no responsibility in the matter.

Dr. Dowling has referred to the fact that in Louisiana they have \$40,000, two cents per capita, to carry on public-health work. We have three cents per capita, but we are not much in advance of Louisiana in the matter of public health, simply because the people do not yet realize that public health is a problem for the people. They do not seem to realize that nearly half of the deaths annually are due to preventable causes; they do not consider the economic loss brought about by diseases which are preventable. I do not know yet whether Dr. Dowling has letters relative to free antitoxin. I have. We have tried for years to get antitoxin for distribution, free of charge, in Minnesota, but so far have failed. The last Legislature appropriated \$10,000 a year for hog-cholera serum and an additional \$15,000 was given for this year, making \$25,000 in 1914 for hog-cholera serum. I hope that the good people who have influence with the next Legislature will try and induce it to give as much money for free antitoxin as they do for hog-cholera serum.

Dr. Dowling referred to the fact that letters of commendation are few. They are. I presume our friends feel we are simply doing our duty, and our reward will come some time. May be it will. Probably Dr. Dowling is more politic than I am, and therefore may not receive as many letters of condemnation as I do.

Dr. Dowling has referred to vital statistics. The doctors report deaths, and we have to classify them. Apparently many physicians give little attention to details in making these reports, but when they want statistics, they do not hesitate to criticise us if we cannot give them all the data they want. How can we compile statistics without facts? And as for the babies, some of our doctors do not yet know that a birth certificate is an important legal document. A few days ago correspondence covering twenty letters or more regarding the birth of a child was brought to me. The last letter was from the father. We are still after the doctor who failed to make the report as required by law, and hope finally to have the birth recorded.

Dr. Dowling stated that in Louisiana the health-officer receives a salary of from nothing to \$25 a month. Some of our health-officers might profitably move to Louisiana, for very few of them receive a salary of \$25 a month.

Every sanitarian meets with more or less opposition from the public. Too often the people seem to think that if they could conceal the facts relating to an epidemic it would pass away without any sanitary supervision. This is all wrong. The sooner they recognize the presence of disease and take the proper steps to control it the better. The contrast between the methods used in Louisiana with those used in San Francisco a few years ago in the handling of plague is very striking. Louisiana profits by her frankness. San Francisco suffered as the result of the distrust which arose through the attempt of that city to conceal facts relating to the existing plague.

It is right to give publicity to these facts, and it does one good to have a man like Dr. Dowling come before us, and tell us what the actual conditions are. If we know what they are, we know what we are to avoid. If we do not know what they are, we are suspicious of everything. Publicity is good; correspondence is good; a clearing-house for kickers is good; it is rather a necessity, and if it must be in the office

of the state health-officer, let us see that it is well conducted.

DR. H. W. HILL (St. Paul): I want to thank Dr. Dowling and to congratulate him and the Association on the excellent paper which he has given us, covering as he did almost every phase of public health.

Dr. Dowling, in his excellent paper, has brought out the point that human nature is the same here as it is in New Orleans. He uses slightly different language from us. He says parish where we say county; but human nature which he describes as existing in New Orleans is exactly the human nature we have here, and that we have in Boston and in other places. If you draw a line from New Orleans to Minnesota and then Boston, you will find they form a triangle, with differing climate and differing language, but the human nature is the same. We used to get such letters in Boston as you do here. Here is one for example: "Please come to our basement and listen to the smell; it is fierce. Please hurry up and perfumigate it." (Laughter.)

Dr. Dowling made the point that one would think we were living in the dark ages of sanitation considering the confusion in the public's mind as to what a health department is for, anyway. The general public has very little appreciation as yet of what a health department is for. Of course, we try to say that a health department is to reduce disease and death. The general public thinks all a health department has to do is the left-over jobs, the things the police and fire departments do not do.

The inefficiency of statute law in public health is especially a good point which Dr. Dowling raised, and for the simple reason that a statute law is very certain to incorporate in it unchangeable ideas and traditions of the past that hamper the health officer in every direction when he tries to introduce into his work the modern advances of medicine. Suppose you, in your surgical or medical work, were compelled by law to follow the systems and methods and practices of twenty or thirty years ago? That is exactly the situation which many and many a health officer must meet today.

As far as the effect of corporations in restricting public health work is concerned, we suffer from that in this state also. Within twenty-four hours I have been told by a very good publicity man in this state that one reason he did not use cartoons in his bulletin was that one bulletin made a slight reflection on a milk corporation, and the use of cartoons was prohibited. The curious and interesting part from the publicity man's standpoint is that the authorities do not object to having critical articles on subjects because the people do not read the articles, but they object to the cartoons because the people do see the cartoons.

We have learned a good deal from Dr. Dowling's talk about the plague situation in New Orleans, and while Minnesota is well ahead in public health lines in the northern part of the United States, New Orleans is very far in advance, if not the leader, in the southern part of the country. (Applause.)

It would be most ungracious if I should sit down before expressing the great pleasure which it is to me to be back here in Minnesota again. It is the one place in all my wanderings I was the least desirous of leaving, and when I did leave I left behind many, many dear friends. The kindly expressions I have received since my return have made it an additional pleasure to be back here. (Applause.)



# SUBSTITUTE OPERATIONS FOR THE MORE RADICAL SURGICAL WORK ADVISED BY MR. LANE IN INTESTINAL STASIS

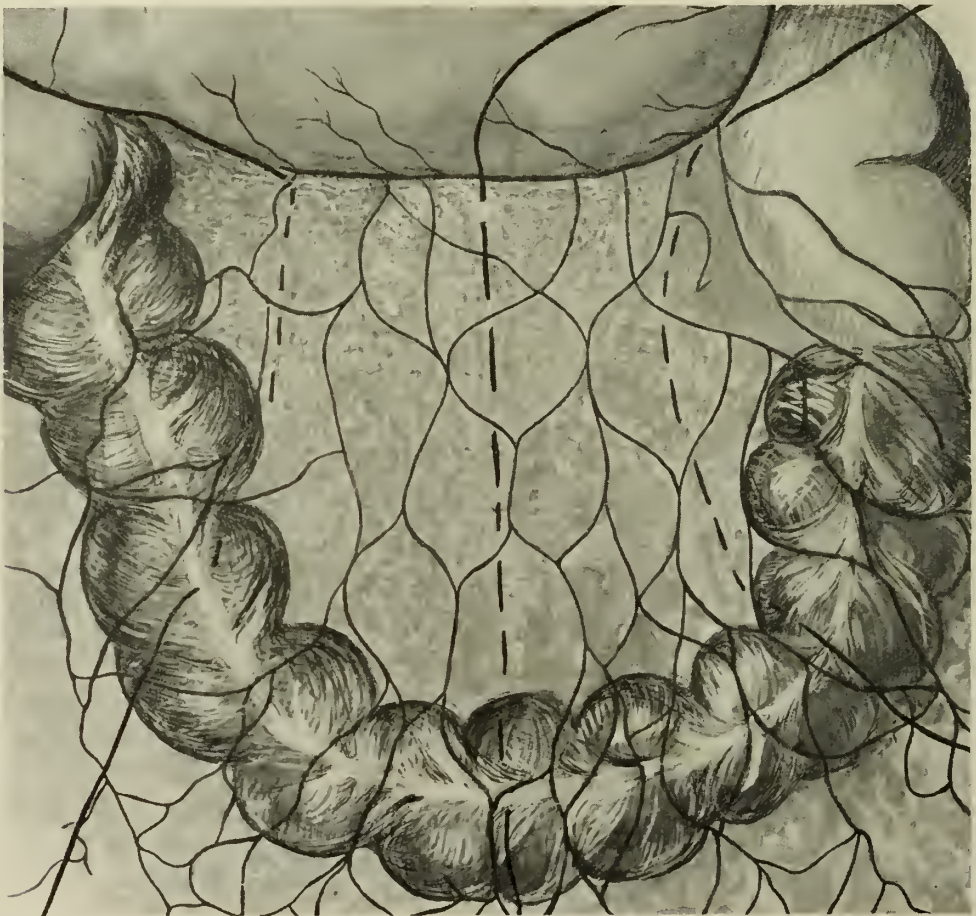
By ARTHUR E. BENJAMIN, M. D.  
MINNEAPOLIS

## IN TWO PARTS—PART II

One great difficulty is to recognize when it is necessary to perform an operation to relieve stasis, and when to do a late operation, in cases where the end-results have assumed such proportion that the removal of the primary cause would be useless; or, in other words, when de-

Where there are a dilatation and prolapse of the stomach and colon or kinks with bands or adhesions, a more simple operation should be determined upon, so that the radical surgical work would be unnecessary.

Rovsing, of Copenhagen, is a strong advocate



Sutures placed in Rovsing operation.

generation of the tissues has occurred to such an extent that operation would be a failure and the surgeon justified in doing but little, the question arises in these medically unrelieved cases of stasis, what is to be done? It has seemed to me that the radical operation of Lane (colectomy) is seldom justified.

in these cases of suspending the stomach and colon. He believes many of the cases Lane short-circuits, or does a colectomy upon, are amenable to treatment by his operation. Many other writers have proposed and practiced similar work.

It has always seemed to me a stomach and

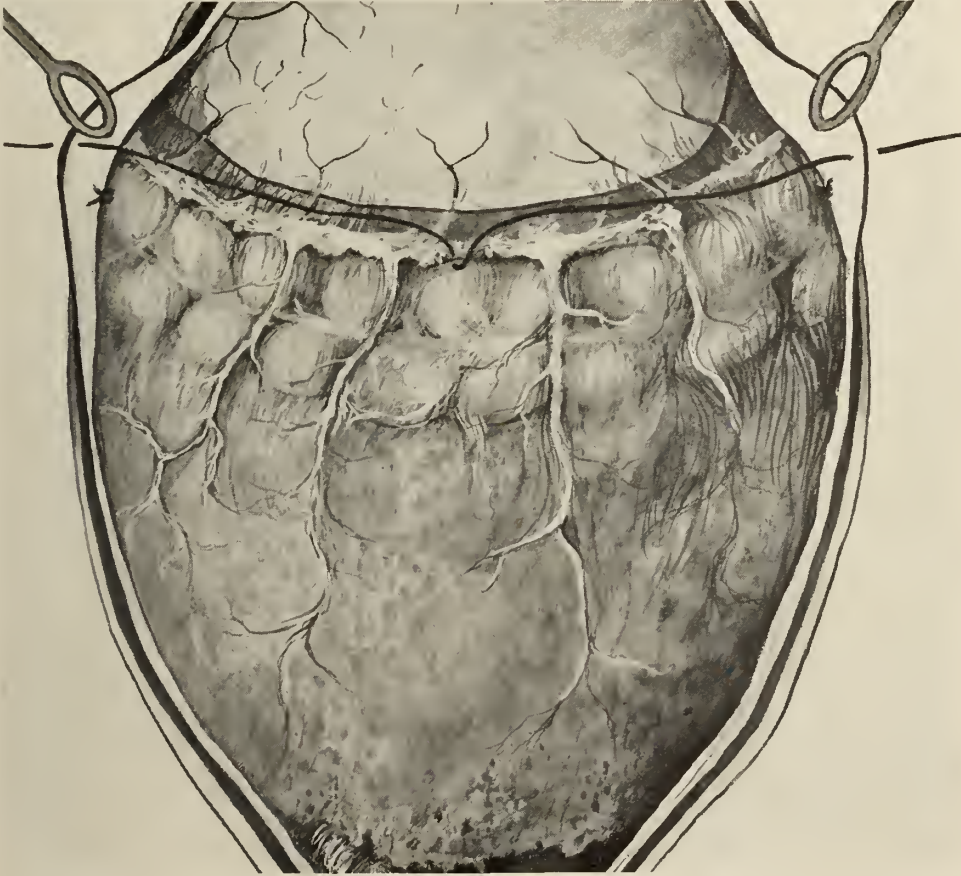


colon habitually in the pelvis cannot permit the normal activity of the alimentary canal, or give the maximum amount of pleasure and comfort to the owner. I have, therefore, in carefully selected cases with unrelieved symptoms, practised this elevating of the stomach and colon for a number of years with usually a fair degree of success and gratifying results to my patients.

A number of my early cases were done before we had the x-ray developed to its present degree of efficiency; and, therefore, I had little to guide

upper abdomen to the presence of the stomach and intestines, lessens the tendency to stasis, and somewhat enlarges the upper abdominal space, and takes the tension off the lower abdominal muscles. A properly fitting corset worn days also supplements this method.

Other cases of gastrocoloptosis with marked symptoms of hepatic kink, such as "gall-stone colic," with dilatation of the cecum and more or less pronounced signs of an existing membrane, such as a parietocolic fold of Jonnesco or ileo



Placing of sutures for elevation of transverse colon.

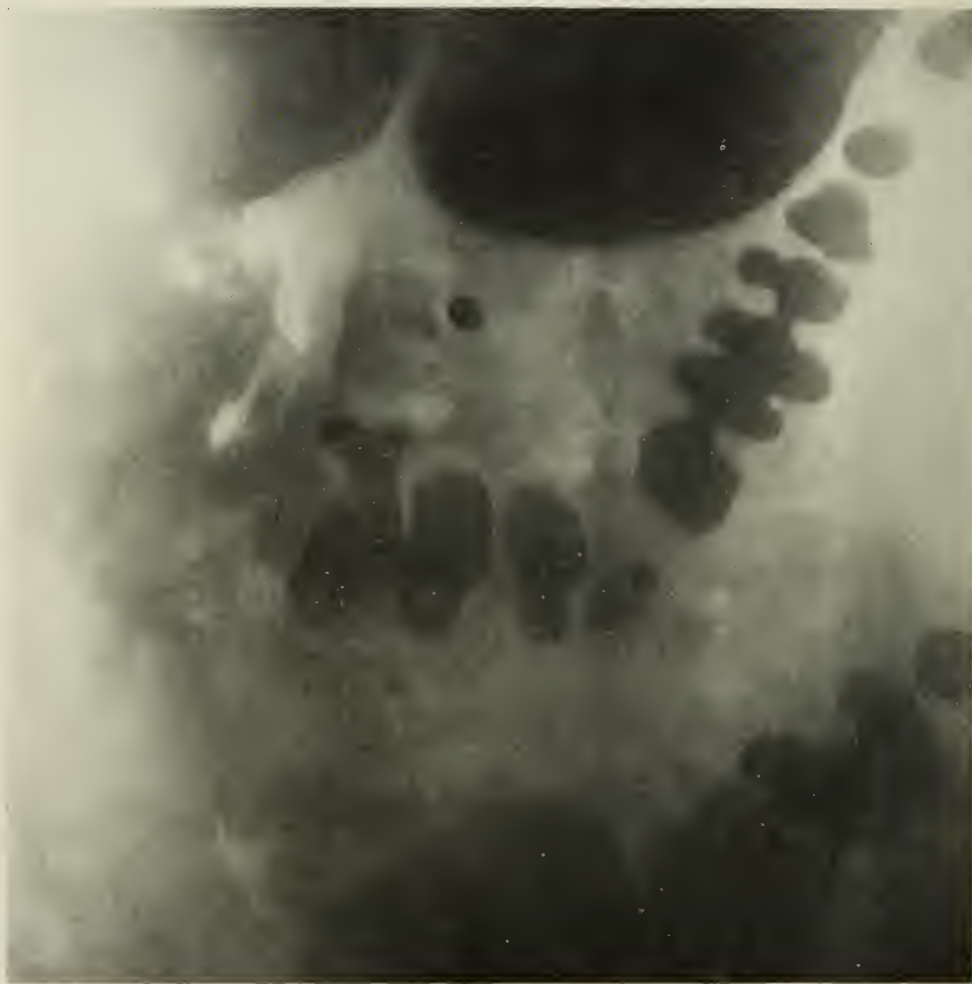
me other than the symptoms, clinical history, and physical findings. This suspension was not done according to Rovsing's plan, as it was performed before knowing of Rovsing's method. Of late, I have at times followed his method, except I have not tried to enlarge the upper abdomen in certain cases, as he does, but have, previous to operation, had such patients sleep with the foot of the bed elevated for months, a plan which is usually followed even where an operation is not performed. This accustoms the

pelvic band of Lane, require surgical attention. In such cases great relief and comfort has been obtained by dissecting off the harmful portion of this membrane, or by severing the constricting bands, and covering raw surfaces by detached omental grafts or with peritoneal tissue, and tacking up the transverse colon so as to prevent the refixing of this part of the bowel to its former location. This is done by suspending the gastrocolic omentum, including the white line of the transverse colon, in three points, two

lateral and one central, suspending it from the peritoneum. This elevates the stomach and occasionally obviates the necessity of shortening the gastrohepatic omentum, or for doing a Rovsing operation, in some instances, when the stomach has been prolapsed as well. In cases where the cecum has been very much dilated or twisted, the distal constriction has been relieved, and a plication operation has been done upon the

colon; very little is accomplished by this procedure."

Lane undoubtedly gets better results than the average operator. He is a very dexterous surgeon; nevertheless, he has said that the objections are that intestinal adhesions follow, and he reiterates that "if we can solve the problem of intestinal adhesions after colectomy, the results will be marvelous." It has seemed to me



Case of dilated duodenum and duodenal ulcer caused possibly from intestinal stasis

dilated cecum and part of the ascending colon. This very much lessens the size and caliber of the cesspool, and prevents the accumulation of the contents of the bowel at this point. The results have been very satisfactory in these cases.

Adami says of Lane's work: "The nature of the organism responsible for the disturbance and its probable seat of entry should be discovered, and other means of procedure taken before operation is advised. It is unwise to remove the

that, in the removal of so large a portion of the alimentary canal together with the omentum, we are depriving the intestine of the necessary fatty protection needed between it and the peritoneum of the anterior wall which limits adhesions and their evil consequences. There can be a recurrence of intestinal stasis from adhesions interfering with the flow of the fecal current. To resect the ileum and unite it to the sigmoid only offers an inducement for fecal contents to back



up into the descending, transverse, and ascending colon and cecum. This condition is a positive and realistic objection to such an operation.

Personally I have not thought well enough of these operations to test them out; but for two or three years back I have thought that a short-circuiting operation of less magnitude, and probably one of equally good results, might be performed by doing a cecum-sigmoidostomy.

just what results we are going to obtain in these cases. At the present time I am carrying out a series of experiments to note whether Dr. Oppel's contentions are correct or not. I am using chromic catgut entirely in most of the cases to avoid non-absorbable-suture irritation. I have at the present time in my experience and work, found no evidence of filling up of the loop of the colon after these operations.



Cecum-sigmoidostomy for pronounced colitis or intestinal stasis. First stage.

Dr. Oppel has demonstrated in a number of instances that, when there is an anastomosis made between any portion of the colon and the sigmoid, there is a damming back of the contents of the colon, and a tendency for the contents to fill up in the loop left out of the fecal circulation, or there is a continuous circle produced through which the fecal contents travel several times.

I have attempted cecum-sigmoidostomy upon animals, as well as on human beings, but have not used it a sufficient number of times to see

#### CONCLUSIONS

Intestinal stasis has now become one of the most important studies in the field of medicine and surgery.

The symptoms due to this disease are numerous, varied, and complex, so that an erroneous diagnosis is frequently made, and the symptoms present are attributed to other causes.

The disease is occasionally seen in children, and may have a foundation in congenital defects or bands, which tend to inhibit the natural peristaltic action of the bowel.

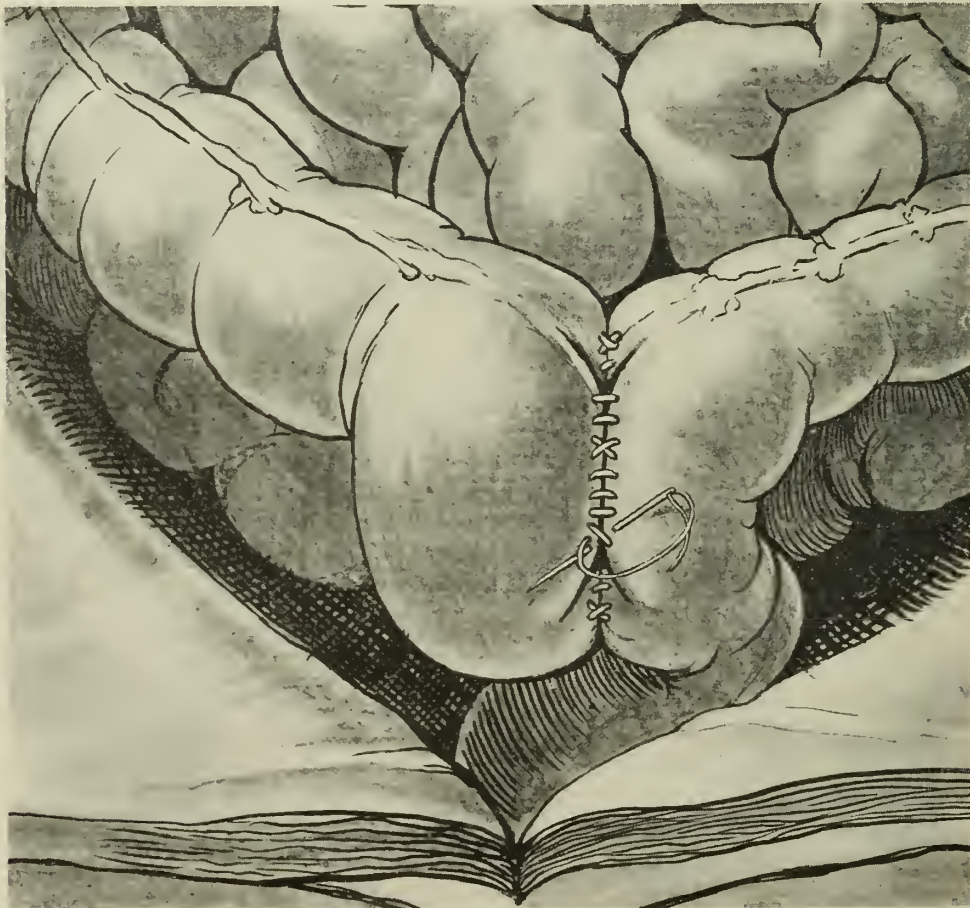


It is not the presence of infectious micro-organisms within the colon, but the reflux of this infection into parts unaccustomed to the presence of these germs and the ready absorption of the same from these parts, even damming back as far as the pylorus, dilating the duodenum, and interfering with the normal emptying of the stomach at times, that produce the disturbance.

The presence of infectious micro-organisms within the bowel, especially the colon, may re-

ent, but a definite location of the kink or primary cause should be determined by the use of bismuth and x-ray-screen examinations or skiagrams before operative procedure should be undertaken.

Where there is any tendency or suspected condition which might favor the development of intestinal stasis, the treatment should be begun in early childhood, at which time further development of the disease can be often prevented,



Cecum-sigmoidostomy for pronounced colitis or intestinal stasis. Second stage.

sult in an inflammation and transmigration of the infectious micro-organisms through the walls of the intestines, producing adventitious bands in addition to the congenital bands present, further interfering with the bowel-action, resulting in obstruction and more pronounced symptoms of stasis.

The incompetent ileocecal valve would seem to be the result of stasis rather than the cause of the same. The diagnosis of this condition can be often made from clinical symptoms pres-

ent, and the symptoms complained of frequently overcome.

This treatment could be further elaborated in older cases in the way of exercise, massage, medicine, dietetic treatment, and hygienic and mechanical methods, as well as the wearing of suitable clothing, a properly fitting corset during the day, and possibly the elevation of the foot of the bed at night. In pronounced cases not amenable to this treatment, operative procedure should be contemplated.

The radical methods advised by Lane, namely, the ileosigmoidostomy or colectomy, seem seldom justified, as, in the former operation, there results a loaded and filled up, redundant, and useless colon; and in the latter operation, numerous, pronounced adhesions which ultimately can lead to the recurrence of stasis. And, furthermore, these operations, especially the latter, are followed by an unwarranted mortality-rate. The relief of constricting bands and the reduction of unnecessary enlarged pockets, such as dilated cecum, by means of the plication operation, and the replacement of the prolapsed colon and stomach by the mechanical elevation and suturing of the gastrocolic omentum to the lateral peritoneum and to the median incision, and possibly the shortening of the gastrohepatic omentum, and even the elevation of the stomach by means of the Rovsing operation, are simple, free from danger, and prevent the recurrence of these kinks, and favor the normal flow of fecal contents.

This treatment, followed by dietetic, mechanical, and hygienic methods in the majority of cases, brings satisfactory results. In other more pronounced and suitable, well-selected cases, the operation of cecum-sigmoidostomy would seem rational, and possibly satisfactory, but further investigation, research, and experiments should be followed up to determine whether this will be satisfactory to the patient, as well as to the surgeon.

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## SPLENECTOMY FOR PERNICIOUS ANEMIA\*

BY ARTHUR T. MANN, S. B., M. D., F. A. C. S.

Assistant Professor of Surgery, University of Minnesota Medical School; Chief of the University Surgical Division Minneapolis City Hospital, Etc.

MINNEAPOLIS

Since our clinical surgical trip abroad the past summer, made by a group of members of the Western Surgical Association, I have been collecting some notes on the spleen. I have operated in two cases of splenectomy, one for Banti's disease and one for pernicious anemia.

The case of pernicious anemia was in a female, 35 years old. In January, 1914, she had r. b. c., 900,000; w. b. c., 5,000; hgb., 30 per cent; nucleated reds, numerous; poikilocytes; megaloblasts. She had had temporary improvements and retrogressions. In July, 1914, she became bedridden. I saw her first early in November. On October 29th, before I had seen her, the red cells were 1,900,000. She had made some improvement, and had begun to go backwards again; w. b. c., 9,000; hgb., 40 per cent. She had lost twenty-five pounds in weight.

I removed the spleen, and fifteen days later the r. b. c. were 2,600,000; w. b. c., 29,000; hgb., 60 per cent; no megaloblasts; no nucleated reds; few poikilocytes.

The blood returned to normal apparently according to later reports, though the patient is in the country and I have had no further actual blood-counts given me in the reports. Marked leucocytosis is the rule after splenectomy, but it is a temporary condition, and as a rule soon returns to normal.

This patient is also a mental case with the appearance of the symptoms coming before the time of the operation. The mental condition has not improved with the blood-picture, but has become rather more advanced.

In regard to some of these cases I collected reports with reference to splenectomy as a possible means of curative treatment.

Dr. G. E. Armstrong (*British Medical Journal*, 1906) reported one case and collected others to make 32 cases. There were 23 recoveries and 9 deaths,—a mortality of 28 per cent. Almost without exception where any results were reported in the recovered cases they were reported as practically restored to health. The oligocythemia and leucocytosis after operation had quickly disappeared, and the blood gradually returned to normal. The pigmentation had gradually disappeared. The disappearance of pigmen-

tation and the improvement of the blood are sometimes retarded, though they return toward normal. In Laspeyer's case they were still present five months after splenectomy; and Banti reports one case of splenectomy in which ten months later the leucocytosis was not back to normal. In many cases the liver is reported to have returned to normal size.

Eppinger has been spoken of a number of times. In one of his papers (*Berl. Klin. Woch.*, Dec. 29, 1913) he wrote on pernicious anemia. He quotes five other clinicians who have reported constantly favorable results from removal of the spleen in this disease. His researches indicate that the blood-vessels are modified in a peculiar way which permits the red corpuscles to escape into the pulp where they are destroyed. The normal passage through the capillaries seemed to have been obstructed in the seven spleens which he had removed for pernicious anemia. When the red corpuscles escape into the pulp they die off much like those with a hemorrhage elsewhere. Removing the spleen puts an end to the process. He suggests that ligation of the splenic artery might serve a similar purpose.

He speaks of "blood-lymph nodes" in cases of pernicious anemia. They seem to be of a structure analogous to that of the spleen, and seem to be able to compensate for the lack of the spleen. They are found in many animals; and he has noticed them in profusion in cases of pernicious anemia. When benefit does not follow splenectomy it is more than probable that these blood-lymph nodes are carrying on the pernicious activity of the spleen. The possibility of their presence should not bring discredit on splenectomy as the most important measure in the treatment of pernicious anemia.

In another paper (*Berl. Klin. Woch.*, 1913, p. 1509) Eppinger says icterus generally disappears after removal of the spleen, and the iodine content of the lipoids of the blood sinks in relation to it. Measuring the urobilin in the stools (Charnass' spectrophotometric method) is a certain relative method of measuring the destruction of the erythrocytes. The urobilin content is lower after splenectomy.

He had done splenectomy with good results so far in two cases of hemolytic icterus, two of

\*A discussion given before the Minnesota Pathological Society, April, 1915.



pernicious anemia, three of Banti's disease, two of hypertrophic cirrhosis of the liver, and one of grave catarrhal icterus, with no deaths. There was often an idiopathic fever for a time following the removal of the spleen.

The spleens in pernicious anemia and hemolytic icterus were very much alike. They were crowded with erythrocytes. In cases with marked hemolytic processes the liver also was functioning pathologically. It seems that such conditions as hypertrophic cirrhosis are due to primary disease of the spleen. The cases which were improved by splenectomy seem to have been characterized by an abnormal increase in splenic function. As a means of defense against this, an increased activity of the bone-marrow seems to have developed. In increased hemolysis therapeutic measures should not be directed toward the bone-marrow (tonics), but toward the spleen (splenectomy).

M. A. Tait (*British Medical Journal*) quotes Bland Sutton: "The spleen is a specialized lymph-gland, and if the spleen is removed the lymph-glands perform its duties." Jordan says the compensation soon develops after splenectomy in patients greatly debilitated and even in pregnant women. Splenectomy in lower animals produces little or no injurious effects, and the same has been found true of the human; therefore, it is an organ not essential to health or to life. There are cases on record with congenital absence of the spleen.

O. R. C. Huber (*Berl. Klin. Woch.*, Nov. 24, 1913) speaks of the remarkable improvement following splenectomy, and suggests that the spleen must be a much more important factor in pernicious anemia than has hitherto been suspected. It seems to acquire a very destructive action on the red-blood corpuscles, at the same time checking production of the new red corpuscles by influence on the bone-marrow. He says removal of the spleen may not remove the cause of the disease, but it does away with the source of several of the most serious elements of the disease. The bone-marrow may recuperate completely in mild cases when this disturbing element drops out; and even if not, the conditions improve when the blood ceases to be destroyed in such wholesale numbers.

Huber's case of pernicious anemia had a hemoglobin of 15 per cent. The patient felt better by evening after splenectomy; and the improvement was marked by the next day and later. By the

fifth week the hgb. was 50 per cent, and the r. b. c., 2,500,000, with no further edema, jaundice, or urobilin-urea. The seventh week the progress seemed to stop, and the hgb. dropped a little (to 42 per cent). The patient took fresh beef spleen, and was up and about and cheerful in marked contrast to the desperate condition before the splenectomy.

Drs. W. S. Harpole and Chas. M. Fox reported a splenectomy for pernicious anemia, in which the spleen was felt. July, 1913, the case showed hgb., 40 per cent; r. b. c., 1,200,000; color-index, 1.69; w. b. c., 28,000; August 29, hgb., 37 per cent; r. b. c., 1,113,600; w. b. c., 5,000; color-index, 1.6.

Operation September 8, 1913.

On September 10th, hgb., 20 per cent; r. b. c., 960,000; w. b. c., 22,000; color-index, 1.4 per cent.

September 14, hgb., 25 per cent; r. b. c., 1,100,000; w. b. c., 18,000.

October 3rd, hgb., 40 per cent; r. b. c., 1,760,000; w. b. c., 9,400; color-index, 1.07 per cent.

November 6, hgb., 45 per cent; r. b. c., 1,968,000 with w. b. c. increased to 18,000. At this time the patient was operated on for an acute appendicitis; and after the operation the blood-counts fell off, but soon began to recover, though by December 18, 1913, at the last report it was not quite up to the counts of November 6th. There were a great number of normoblasts in the blood since the splenectomy.

F. Port (*Berl. Klin. Woch.*, March 16, 1914) reported a pernicious anemia in a male, aged 31.

The blood-picture was typical. Splenectomy was followed by improvement until three months after operation when the hemoglobin was 77 per cent; r. b. c., 3,556,000; w. b. c., 9,500.

Warren Coleman and John A. Hartwell (New York) reported a case with some improvement after splenectomy, but it was slow, and they thought that it might prove to be temporary. The patient was just beginning to sit up six months after operation.

If splenectomy is to be of value in arresting the disease, it should be performed before unalterable changes have occurred in the liver and other parts. Senator (quoted by Moynihan) has expressed the belief that when removal of the spleen has proved successful it is because the operation was performed before the bone-marrow had become involved. In a few cases, however, operation has been successful at a late stage.

# THE RELATION OF FOCAL INFECTION TO SYSTEMIC DISEASE\*

By S. MARX WHITE, M.D.

Associate Professor of Medicine, University of Minnesota.

MINNEAPOLIS

Modern pathology recognizes the principle that infective organisms when attacking the human host practically always begin the attack at a local focus or in multiple foci in a certain organ or tissue. Long ages of attack and defense have developed in the race defensive forces such that, as a rule, invaders are destroyed in this first line of entrenchments.

Our first knowledge of this process concerned such diseases as anthrax, gonorrhea, typhoid fever, and tuberculosis, conditions in which a primary localization is often followed by dissemination of the organisms. Again, we learned that certain organisms like *B. diphtheriae* and *B. tetani* produced systemic effects by means of soluble poisons, the organisms themselves remaining localized.

The discovery of the processes of infection and resistance, and the means by which these processes may be controlled, form some of, if not the most brilliant, chapters in the history of medicine. As these chapters have unfolded, there has been, through experience, a growing realization of the complexities, the uncertainties, and the failures in the processes of resistance to, and elimination of, foci of infection. We have great groups of cases in which the natural processes, through various causes, have failed to completely destroy micro-organisms in foci of disease, infection remaining.

In the study of the relation of focal infection to systemic disease, three practical questions arise:

1. Under what circumstances must we suspect a local focus of feeding infective material to the fluids and tissues of the host?

2. Where shall we search for, and how shall we find, the offending focus?

3. When found, how shall it be dealt with?

For fear of being accused of incompleteness, the writer hastens to deny any attempt at a categorical answer in a ten-minute paper. In the language of the cartoonist, "It can't be done." In the light of our present experience, however, a long step toward crossing this field of knowledge is being taken.

I wish at this time to sketch, very briefly, some

of the most suggestive things that appear, in my experience, to help toward answering these questions. I shall hope to avoid the old or the obvious.

To state that practically all infections begin in some focus is old; to say that an abscess can be the source of dissemination of infective material is to state that which is today obvious. Syphilis, tuberculosis, actinomycosis, and a host of other infections begin locally. Our present problem is to go back of the obvious situations: to get at and bring to light those cases in which either the primary focus of infection, or else its relation to a systemic disorder, is obscure, hidden, not apparent; but in which we can reasonably look for such an infective focus, and through its elimination restore order.

In what conditions may we expect to find such an infective focus?

Rheumatic fever most frequently arises in the tonsils, but evidence accumulates to show that the origin may be in other tissues, as in a septic wound anywhere, probably in certain parodontal infections, and, more difficult to recognize or affirm, possibly also in infections of the intestinal tract.

We may have any of the so-called complications which are really only non-arthritis localizations, such as endocarditis, myocarditis, pericarditis, and pleuritis, without the arthritis, from the same sources of infection, while chorea and myositis with the rare and interesting polymyositis no doubt belong in the same group.

The chronic and deforming arthritides have, with scarcely a protest and almost en masse, been transferred into the class of systemic infections arising from some focus, for we were prepared because of three outstanding facts: (1) the not infrequent occurrence of endocarditis; (2) the occurrence of mild attacks of inflammation about the joints with or without rise of temperature; (3) the similarity to gonorrheal arthritis, previously demonstrated to be a specific infective disorder.

In the field of chronic arthritis our knowledge is as yet not complete as to the usual points of origin, but we most commonly find infections about the teeth, in accessory nasal cavities, the prostate, the gall-bladder, and, again stating the

\*Read before the Hennepin County Medical Society, February, 1915.

possibility, the intestine. Our experience in the University Hospital would tend to place the greatest emphasis on the parodontal infections.

One difficulty encountered in this study is the relative permanency of periarthritic changes, the integrity of the joint often being more or less permanently impaired, even after the source of infection has been removed. For this reason the study of results is handicapped, the only safe criterion of results being the relief from further progress of the lesions with disappearance of the mild attacks of inflammation. To be sure of this we must wait an inordinately long time, since natural remissions occur. Prognosis in this field must be particularly guarded, not only for this reason, but also because the foci found and eliminated may not include all those responsible for the disorder. In other words, you may stop the progress of the disease, but you have not removed its consequences; you may find infective foci, but you may not have found the focus or foci at fault.

Rosenow's work, pointing toward a similar hematogenous origin for gastric ulcer, secures prompt attention, for it is in line with our established theories as to the cause of this, as yet, obscure disease. If confirmed and it becomes established that streptococci of a certain virulence can be a determining factor in its causation, we shall have another indictment against local foci of infection. Appendicitis, cholecystitis, pyelitis, and nephritis—particularly the hemorrhagic type—may be set up by metastatic infective processes of the type under discussion, although we see them also under other conditions. No such case, obscure in origin, should be passed over without attention to this possibility.

"Neuralgia" is a term much less frequently heard since so many cases have been cured by draining an infected accessory nasal sinus, or by drainage of abscesses in the jaw; and we are paying attention to the suggestion that many cases of neuritis, true nerve-inflammation, are due to an infective focus somewhere.

That anemias of the so-called secondary type often depend for their existence upon obscure foci of infection is becoming plain. We easily ascribe an anemia of this type to any existing and recognized chronic infection (not forgetting the many other causes for secondary anemia), but we are not yet accustomed to reasoning back to a chronic and obscure focus of infection as among the possible factors in its production. We must now train ourselves to do this.

The experience now repeated of seeing an anemia lessen or disappear after the elimination of an obscure infective focus, leads me today to include such a focus among the possible causes. I would emphasize, however, that such anemias are usually found in conjunction with other evidences of systemic disease, and are not, as a rule, the sole general manifestation of a focal infection.

Does all this mean that there is just one cause for disease, an infected focus in sinuses, tonsils, teeth, prostate, or elsewhere? Most assuredly, no.

It means that within recent years our attention has been gradually but forcibly attracted to such foci as sources for disease elsewhere in the body; that concrete bacteriologic evidence has been accumulating as a result of careful studies with these possibilities in mind; and that many striking results are being obtained through treatment directed to such foci.

While many bacteria are being found, the streptococcus-pneumococcus group predominates to such an extent that a causative relationship is clear. This does not deny any causative relationship to other organisms, but indicates a strong predilection on the part of this particular group to produce focal infections and to resist destruction.

The discovery of an endameba in pyorrhea alveolaris, by Smith and Barrett, during the past year, together with confirmation by other writers, shows that other organisms may play a role. A most interesting fact brought out by Smith is that Gros described the endameba gingivalis in 1849.

Anyone who believes that the subject of focal infections, as related to systemic disease, is a wholly new one will be enlightened by reading the contributions of William Hunter from 1900 to 1904. Our present knowledge adds but little to his discussions on oral sepsis as a cause of disease in relation to general medicine.

The proceedings necessary to discover foci of infection are sometimes simple, often complex, and the search is sometimes exceedingly difficult and trying principally because of the known lack of value of negative evidence. Foci of infection can be so surrounded by normal tissue, or so deeply hidden and symptomless, that only a profound conviction as to the existence of some focus, coupled with a most painstaking search, will reveal them. The task is not one which any one individual can perform, as a rule. Trained



men in each particular field must take part, but the best of men will sometimes fail to uncover a lesion in his particular field, and the case may need repeated study.

I have had more than once to demand repeated examination in the face of a negative report when some slight localizing indication gave me a clue. I recall vividly one patient whom I had examined by some of our best rhinologists four times before a closed focus containing a dram of foul pus was found in the ethmoid cells. The nasal cavity was normal on careful inspection, and it was necessary to open the region by probing. This was before the days of successful and routine x-ray examination of cranial sinuses, and failure should not, nor does it, occur so readily now.

I think particular caution is necessary regarding the tonsils. This is not the place to discuss the indications for tonsillectomy, but I have not infrequently been called upon to insist upon tonsillectomy when properly conservative colleagues, specialists in that field, have felt that the tonsils in themselves did not present sufficient evidence of existing disease.

I believe that we as often see systemic infection from tonsils which are small, adherent to the pillars, and more or less buried out of sight, as we do from the frankly and evidently inflamed ones. In such cases, and where there are no other foci to be found, the need for tonsillectomy rests more upon whether there is evidence of systemic infection from some local focus than

upon the apparent condition of the tonsil itself. This attitude has frequently brought a reward, the pathologist finding evidence of active infection, or the operator finding a small deep abscess, in cases where the tonsil on clinical examination gave no sign of active inflammation.

The recent activity in the finding of abscesses in the jaws is new illustration of the method of advance in knowledge by the development of a new technic.

Without the radiogram, using small gelatin films, which can be placed in the mouth and record the condition of the teeth and maxillæ, a search for infection would be laborious and incomplete. Even with the x-ray plate great care and experience must be used in interpretation; and this must be combined with a careful clinical study by the dentist, or serious errors will arise.

The method of management in most cases of dental infection combined with systemic disease must be determined by the physician and the dentist in co-operation. Efforts should be made to preserve the teeth when certainty of eradicating the infection is not sacrificed thereby.

Success in the discovery and management of focal infections anywhere is founded on co-operation. The internist, the röntgenologist (as contrasted to the radiographer), the rhinolaryngologist, the dentist, the genito-urinary surgeon, or the general surgeon and the immunologist may be called, one to help the other. It is to be hoped they would not all be needed in any one case!

## TO THE DOCTORS\*

With deep emotion,  
And with teardrops in my eye,  
I'll write a brief epistle  
To my friend of days gone by.  
Still, there's not so much to write  
As in that bygone day,  
For the Doctors now have siezed her,  
And she's fading fast away.  
They will take, in turn, the thorax,  
The esophagus, the spleen,  
The vermiform appendix, and  
The tummy, too, I ween.  
Then the lungs, the lights, the liver,  
And the tonsils, kidneys, too;

And go on cutting, carving,  
Taking all, before they're through.  
Ah, these predatory Doctors,  
How they'll cringe and fear the heat  
When they meet their former victims  
Piecemeal at the judgment-seat.  
When these poor dismembered organs,  
Flitting by in ghostly fashion,  
Point accusing fingers at them,  
And denounce their earthly hashin'.  
Still, on earth, there's naught to stop them,  
And we'll not judge too hard,  
If they'll leave your heart to love us,  
We'll forgive them.

—BILL, THE BARD.

\*A local surgeon sends us this poem from one of his patients, a well-known actor.

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## BATHS FOR MENTAL CASES

The use and abuse of water in the treatment of disease has not been given the consideration it deserves. Books on the subject of hydrotherapy should be in every physician's library, and should be read intelligently. We occasionally see newspaper accounts of accidental deaths from tub and cabinet-baths that give all hospital men something to think about, but do they profit by the accident?

Usually an accidental death in a tub or cabinet is due to a derangement of the apparatus plus the negligence of the bath attendant. Fortunately, these accidents are rare, but none the less deplorable.

In an article in the *Journal of the American Medical Association*, May 15, 1915, by Dr. J. Allen Jackson, of Philadelphia, a few simple and safe rules are laid down. There is no reason why they should not be observed by every physician and every nurse. Too frequently the physician orders a bath of some kind without due reflection as to the character of the disease from which the patient suffers; and, too commonly, the nurse is away from the patient at the psychological moment. The safe apparatus for hydrotherapy consists of a porcelain tub, a shower with

a mixing device, and an electric cabinet-bath. If conditions are such that none of these forms are available the physician must rely upon the hot and cold pack method and the sponge bath or an improvised shower. If water is heated by a gas-machine an inflexible rule must be observed: Under no circumstances should the nurse leave the bath-room while continuous hot water is running or while the patient is in the bath. Under this rule there is little likelihood that the patient is in danger.

The continuous tub bath in which the patient lies for hours or even days, to subdue excitement, or restlessness, or to relax contractures, has been overrated as to its beneficial results. Not infrequently, too, there is danger of heat-stroke or exhaustion, a condition which demands immediate attention and prompt treatment. The continuous bath should be left to highly trained specialists and where the patient is under constant and unremitting supervision.

In the majority of instances therefore the continuous bath may be safely omitted.

The so-called electric tub bath is unworthy of sincere consideration, as it is, at best, only a tickler, a delusion, and sometimes a dangerous snare when the contacts and wiring are defective. The amount of electricity contained in a tub of water is homeopathic as far as its penetrating effect is concerned.

Baths for mental disorders demand the same careful analysis as baths for heart disease, for "the untoward effects of hydrotherapy are prostration, shock, acute circulatory disturbances, heat-stroke and exhaustion, burns, injuries, and complicating physical diseases, such as pneumonia, etc., if the baths are not properly given and the patients properly clad after the treatment." The indications for hydrotherapy treatment, according to Dr. Jackson, are excitement, depression, elimination, autointoxication, and where a relaxation is desired, or mental diversion or exercise.

Continuous baths may be given often and for short periods rather than for hours or days; and, if used, the case must be selected as suitable, preferably from among the robust, and those who are excited.

Ten pounds of salt added to a tub of water is a tonic bath, and may be employed for certain depressed cases. The shower-bath is a safe and sane method of combining heat and cold or alternating heat and cold in those who are depressed or stuporous.

Tub baths should not be prescribed for cases with marked physical deterioration, wasting or advanced diseases, or skin diseases. Cabinet-baths are contra-indicated in cases in which there is marked excitement, as well as marked physical disease.

Old people should not be given baths daily unless it be a sponge bath. Their skins are too dry to endure the drain; and the circulation is too poor to react on the surface.

The other methods of giving baths are water by mouth, enteroclysis, preferably with normal salt solution, hypodermoclysis, cold packs, and hot packs. Any of these forms are safe in most forms of insanity.

### HEALTH CONSERVATION DAY IN SAN FRANCISCO

The American Medical Association has set aside Wednesday, June 23d, as "Health-Conservation Day." All of the Section work will be suspended on that day, in order to permit physicians and laymen to attend a meeting which should be the biggest and greatest in the history of the Association.

The scientific exhibit and the health-conservation exhibit will be so ordered that special and striking features will be of permanent educational value. There will be the work of those engaged in original research investigations, and if any Fellow of the Association has something of value to impart he is urged to bring it to San Francisco for the exhibit. As there is a gold medal and certificates of honor to be awarded, laboratory men may show the result of their labors with profit. The health-conservation exhibit will consist of charts, models, lantern-slides, and motion-picture illustrations.

The following topics will be discussed and illustrated: malaria, dysentery, yellow fever, typhoid fever, plague, rabies, epidemic cerebro-spinal meningitis, poliomyelitis, pyorrhea alveolaris, and trypanosomiasis.

Prominent men will discuss the principle diseases which are now before the medical and lay mind.

The program will be given in the Exposition Memorial Auditorium. Exhibits should or may be shipped to this address, care of Dr. William Ophuls.

Evidently, the tide is surging toward health problems; and the dispensary of the future will be devoted largely to education in hygiene and sanitation. Perhaps the appropriations commit-

tees of our Minnesota Legislature can be induced to peruse the report of this meeting. If they do so they will learn much. They would at least acquire a foundation that would uphold any future additional knowledge, and it might dawn on them that sanitation and hygiene are not methods for graft, but are aimed at good public health. They would also be forced to see that to secure the health of the public money must be expended for the original plant and its upkeep; and, in turn, the reward would be so enormously valuable that the first expense would dwarf itself into insignificance.

### WHAT DOES IT MEAN?

In *THE JOURNAL-LANCET* of Dec. 15, 1914, there appeared an editorial setting forth the value of internships in the Twin City hospitals, and the evils arising out of the very frequent failures of the men who have begun this work to continue the stipulated time. These positions are eagerly sought after, and they pay an almost inestimable return to the men who fill them, especially to those who remain the full year or the year and a half they contract to remain.

The demands for such men to fill partnerships or assistantships with men in the country, have become so numerous and so enticing that many of them forget their contract obligations to the hospitals, and accept the enticing financial offers made them.

We repeat the substance of the editorial because of the serious nature of thus breaking contracts.

Somebody, for some reason, has seen fit to reprint this editorial and send it to members of the profession, who write us to ask why this anonymous communication. Our answer is, that we do not know. We, surely, cannot have the least objection to it; indeed, we are glad to have the point made in our editorial thus reinforced by our unknown friend.

### NEWSPAPER CLIPPINGS

In view of the recent cutting down of expenses for the State of Minnesota, we are constrained to print a few comments by the country press. The first clipping is taken from the *Warren Register*, Chas. L. Stevens, Editor, and published in the *Minneapolis Journal*. Another editorial, of which only two paragraphs are quoted, will, perhaps, convey the meaning and the feeling of the people towards the legislative appropriation committee. The probabilities are that these abstracts



will do no good because people are prone to forget their troubles as promptly as possible. The other clippings are simply explanatory and show, at least, to a degree, how the editors feel.

The last clipping is simply to save the editor's face.

The State's greatest asset is its people. The conservation of natural resources is of vast importance, but it dwarfs when contrasted with the conservation of the lives and health of the people. The last Legislature was derelict when it refused to take steps adequately to protect and preserve the State's wooded dominion, but it erred far more grievously when it failed to give the aid due to those who are doing their utmost to stamp out tuberculosis. More money for combating this and other preventable diseases should have been forthcoming, even though it made necessary the postponement of the erection of some building or a reduction in the amount spent for higher education.

It is easier to find faults than to remedy them. Minnesota is a great and growing state. Her citizenship is one to be proud of, her resources are of incalculable value and none of her sisters has a brighter future. Most of the ills to which she is a prey are common to other commonwealths, but this is no reason why she should wait for the others to show the way to their eradication.—Warren Register.

The legislature voted six times as much for hog cholera serum as it did for diphtheria serum for the human. It appears that the average legislator considers a hog worth six times as much as a human.—Cannon Falls Beacon.

An editor gets so tired and stale sometimes that it is only by the exercise of the most indomitable will power that he can even save the country for another day, let alone his other regular work.—Ohio State Journal.

## CORRESPONDENCE

### THE OPTOMETRISTS VERSUS THE PHYSICIANS AND THE PEOPLE OF MINNESOTA

TO THE EDITOR:

The Optometric bill without the proviso in its original form was slipped through the last Minnesota Legislature for reasons and by means best known to the optometrists. This proviso in the original bill meant that the provisions of the proposed law should not apply to physicians and surgeons. It is declared now that the intention of the optometrists was to do exactly the thing they have done, and the thing which they attempted to do two years ago, that is, to require all physicians to pass an examination before a board of optometry provided these physicians

had the temerity to wish to practice as oculists, or, indeed, to prescribe glasses under any circumstances whatever. The bill referred to, House File No. 31, is most offensive in that it requires the physician to obtain a license to practice from the Board of Optometry, or go to jail, to say nothing of the payment of the fine. Very great indignation is felt by all physicians in the state who have a proper amount of self-respect, and a demand is heard on all sides that the proper officers of the State Medical Association shall immediately take up the defense of its members and test the obnoxious law in the courts. The writer would suggest to the physicians of the state, and especially the oculists, that they each write to the Secretary of the State Medical Association, and give vent to their feelings on this subject.

Respectfully,

CORNELIUS WILLIAMS, M. D.

St. Paul, May 20, 1915.

## BOOK NOTICES

**MEDICAL ELECTRICITY AND RÖENTGEN RAYS AND RADIUM.** By Sinclair Tousey, A. M., M. D., Consulting Surgeon to St. Bartholomew's Clinic, New York City. Second edition, thoroughly revised and enlarged. Octavo of 1,219 pages, with 798 practical illustrations, 16 in colors. Philadelphia and London: W. B. Saunders Co., 1915. Cloth, \$7.50 net; half morocco, \$9.00 net.

The rapid progress of this subject is abundant reason for a second edition of this work.

Dr. Tousey covers the entire subject in a volume of some twelve hundred pages, filled with helpful suggestions. The advent of the Coolidge tube makes that chapter of special interest.

The subject of proper protection of the patient, especially in therapeutic measures, is closely associated with this new discovery; and the chapter on x-ray filters may be read with interest and profit.

—DONALDSON.

**THE PRACTICAL MEDICINE SERIES.** Volume IV, Gynecology. Edited by E. C. Dudley, M. D., Professor of Gynecology, Northwestern University, and Herbert M. Stowe, M. D., Associate in Gynecology, Northwestern University. Series of 1914. The Year Book Publishers, Chicago. Price of this volume, \$1.35. Series of ten volumes, \$10.00.

These series present a wonderful epitome of the literature of medicine. This book in particular gives in a very condensed form a good review of the literature during the past year. Its arrangement is simple and logical; and one in a very short time may look up the progress that has been made. For example, the ductless glands have attracted a great deal of attention during the last year; and here we find a very good review of this subject.

The x-ray and the use of radium and mesothorium

in the deep therapy of fibroids and cancer of the uterus are very well reviewed.

The principal thing which recommends this series is that it is brief, to the point, and sticks to its task, i. e., a digest of the year's literature in a small compass.

—LITZENBERG.

THE PRACTICAL MEDICINE SERIES, GENERAL MEDICINE. Volume I, Series 1915. This volume is complete and may be purchased separately by those interested in this special subject only. Price \$1.50. Price of the series of 10 volumes, \$10.00.

This year book in medicine, as the others, consists of abstracts of the most valuable articles in the principal journals for 1915. The general subjects followed are infectious diseases and diseases of the lungs, heart, arteries, blood; the Ductless Glands; The Kidneys; and Diseases of Metabolism.

Much of value is to be had here in brief form, with references to the original articles. The editors could enhance the value of the reviews with more frequent foot-notes, stating their own and the generally accepted opinions.

Plates and diagrams are used whenever necessary to explain the text. The book contains nearly four hundred pages.

—PEPPARD.

OBSTETRICS. J. B. De Lee, Editor. Volume VII. The Year Book Publishers. Price, \$1.35.

This series of publications is intended primarily for the general practitioner, but the subject-matter is so arranged as to be easily accessible to those desiring to use them as an index to current medical literature.

As usual the literature is well abstracted; and terse comments made by the editor. It is not possible to outline an abstract, but there are many things of great importance which could be mentioned.

The sero-diagnosis of pregnancy has found a large field for speculation and work. Heart disease and pregnancy, the toxemias of pregnancy, the importance of blood-pressure observations, are all live questions. The proper management of labor, the dangers and benefits of pituitrin and allied preparations are of the greatest importance.

The puerperal infections are still with us, and should be considered both from the standpoint of prophylaxis and proper treatment. Abortion and its treatment still needs the most careful consideration in order to lay down proper indication for treatment.

—ADAIR.

## NEWS ITEMS

Dr. H. H. Hanson, of Milan, has located in Greenbush.

Dr. L. G. Smith, of Beach, N. D., is moving to Medina, N. D.

Dr. W. T. Stone, formerly of Park Rapids, has located at Murdock.

Dr. L. A. Harris, of Marmarth, N. D., has located in Bowman, N. D.

Dr. N. O. Sandven, of Park River, N. D., has located at Arnegard, N. D.

Dr. Martin Kranz, of Mandan, N. D., is taking postgraduate work in the East.

A new x-ray machine has been installed in St. Francis Hospital in Wahpeton, N. D.

Dr. T. N. Yeomans, of Minot, N. D., is taking special work in New York and Ann Arbor.

Dr. I. J. Murphy, of Duluth, is taking postgraduate work in medicine at Johns Hopkins.

Dr. Alfred Hoff, of St. Paul, was married last month to Mrs. Merrun Dyer, also of St. Paul.

Dr. Ethel E. Hurd has been re-elected president of the Political Equality Club of Minneapolis.

Hazen, N. D., is to have a county hospital, the first to be erected in either Mercer or Dunn Counties.

Dr. K. E. Berquist, of Duluth, is taking a three months postgraduate course at the Chicago Polyclinic.

Dr. John L. Foxton, of Huron, S. D., was married last month to Miss Mabel Fuller, also of Huron.

Dr. R. J. Church, of Park River, N. D., is spending several weeks in postgraduate study in New York City.

Dr. Carl E. Foss, of Park River, N. D., was one of the passengers to be saved when the Lusitania was torpedoed.

Dr. G. F. Drew, of Devils Lake, N. D., is taking a postgraduate course in eye, ear, nose, and throat work in Chicago.

The Sacred Heart Hospital, of Yankton, S. D., was dedicated on May 25th. The cost of the new hospital was \$250,000.

Dr. J. J. Reilly, of Milton, N. D., died last month. Dr. Reilly began practice in North Dakota thirty years ago.

The new St. Alexius hospital, at Bismarck, N. D., was formally dedicated as a specific Catholic institution May 19.

Dr. Walter Brodie, of St. Paul, is taking the place of Dr. Ralph Kirsch, of Crookston, while the latter is on a vacation.

Dr. G. H. Ogle, formerly of Madison, S. D., has formed a partnership at Colton, S. D., with Dr. P. D. Bliss, of that place.

Dr. J. E. Moore, of Minneapolis, gave the address on surgery before the South Dakota State Association last month.

Dr. Gerald Raskilly, of the Asbury Hospital, Minneapolis, was married on May 17 to Miss Ruby S. Cummins, of Virginia.

The Visiting Nurses of Minneapolis have established a children's camp at Glenwood, where tubercular children will be taken.

Free antitoxin for diphtheria will be given out through 122 stations in Minnesota. Every county has a station and some counties have more than one.

Dr. Mark Mizener, who has been taking post-graduate work at Harvard and elsewhere, has bought the practice of Dr. N. A. Munro, at Bowman, N. D.

The State Biological Laboratory at Mankato will not close, funds having been supplied by the county to keep it open—for the State of Minnesota!

The Board of County Commissioners, of Pennington County, has appropriated \$4,000 for the physicians' and surgeons' hospital being erected at Thief River Falls.

The American Surgical Association meets in Rochester, Minnesota, on June 9th to 11th. Practically all of those in attendance will go on a special train to California.

Dr. P. C. Davidson, formerly of Clara City, and Dr. L. L. Sogge, formerly of Windom, have formed a partnership at Willmar with Drs. E. H. Frost and J. C. Jacobs, of that city.

Dr. H. O. Collins, of the Minneapolis City Hospital, plans to install a dentist at the hospital that patients suffering from diseases aggravated by poor teeth may have proper care.

Drs. H. L. Ulrich and J. H. Morse, of Minneapolis, have recently returned from a trip in the East. Dr. Ulrich read a paper before the American Association of Immunologists at Washington.

The loss of the Minnesota State Board of Health's Laboratory at the State University will be seriously felt. It was closed because of the "economy" fit of the Legislature and will remain closed until August 1st.

Minnesota and North Dakota lost by death last month two of the oldest and most highly respected physicians of the Northwest, Dr. J. M. McMasters, of Minnesota, and Dr. Geo. A. Stark, of North Dakota. Brief notices of each man appear elsewhere in this column.

Officers of the U. S. Government are making war with big guns loaded with big ammunition (five years or \$2,000) upon violators of the Har-

ison bill. A St. Paul druggist-physician has been arrested upon the charge of numerous violations of the law.

Dr. George A. Stark, of Mandan, N. D., died last month at the age of 71. Dr. Stark was a graduate of Quebeck, and went to North Dakota in early pioneer days, and soon had a large practice. He was a man of sterling character, and was highly esteemed by the medical men of the State.

Dr. E. C. Rosenow, of the Memorial Institute for Infectious Diseases, of Chicago, will soon join the staff of the Mayo Clinic. Dr. Rosenow has made a world-wide reputation by his bacteriological work. He has often been in Minnesota, and his work is well known to our medical men.

As this issue goes to press, it is announced that the Drs. Mayo have made many concessions in the terms upon which they invited an affiliation between the Mayo Clinic and the Medical School of the University of Minnesota. The revised terms of the temporary arrangement will be given to the public probably before this paper reaches our readers.

Dr. H. W. Hill, Executive Secretary of the Minnesota Public Health Association, has been granted a leave of absence for seven months. Dr. Hill was doing a work hardly surpassed in value by any other man in the State. An economical Legislature sacrificed him simply to make a reputation for economy mainly in the interests of several politicians. Dr. Hill will probably return to London, Ontario.

A Preventorium for children will be opened this month at Lake Owasso. This is the first institution of this kind in Minnesota. It is conducted by the women of St. Paul. Dr. H. L. Taylor is chairman of the board of managers. The money necessary for this beneficent work was raised by private subscription and a "Tag Day" last year. It is hoped that the institution will soon be able to take care of 200 children.

The Optometrists of Minnesota slipped one over on the medical men of the state when they put a law through the late Legislature, which requires all men who examine eyes and prescribe glasses to pass an examination before a board of optometrists. The oculists of Minnesota should be careful not to violate the law! Dr. Cornelius Williams, of St. Paul, writes THE JOURNAL-LANCET a note upon the subject, which will be found under the head of Correspondence.



Dr. James M. McMasters, of Sauk Centre, died on May 14, at Francisville, Ind., at the age of 72. Dr. McMasters was a graduate of Rush. He was a surgeon in the Civil War, and was located at Fort Sisseton, S. D. He located in Sauk Centre in 1868 and practiced there until his retirement in 1912, i. e., over forty-three years. He was greatly beloved by a large circle of friends, especially in the several counties covered by his practice in pioneer days.

The North Dakota State Association met in Bismarck last month. The following officers were elected: President, Dr. V. H. Stickney, Dickinson; first vice-president, Dr. V. J. Larose, Bismarck; second vice-president, Dr. Geo. M. Williamson, Grand Forks; third vice-president, Dr. E. A. Pray, Valley City; secretary, Dr. H. J. Rowe, Casselton; treasurer, Dr. W. F. Sihler, Devils Lake; councilors: Drs. A. C. Nicholson, Max; Wm. P. Baldwin, Casselton; G. Golseth, Jamestown; Chas. MacLachan, New Rockford; delegates to American Medical Association meeting: Dr. C. S. Crane, Grand Forks; alternate, Dr. James Aylen, Fargo. The next meeting will be held at Devils Lake. A full report of the meeting will appear in an early issue of THE JOURNAL-LANCET.

The South Dakota Association held its annual meeting last month at Sioux Falls. The attendance was large, the program was excellent, and the meeting was a highly successful one. The banquet was a delightful affair. One of the best things of the meeting, which was not on the program, was the presentation to Dr. R. D. Alway, the Secretary-Treasurer, of a beautiful gold watch in appreciation of his ten years of service. The following officers were elected: President, Dr. J. B. Vaughn, Castlewood; first vice-president, Dr. F. Crain, Redfield; second vice-president, Dr. H. G. Coobs, Scotland; delegate to A. M. A. meeting, Dr. L. G. Hill, Watertown. Dr. Alway holds over as secretary-treasurer. The next meeting will be held at Aberdeen. A full report of the meeting and all papers read will appear in subsequent issues of THE JOURNAL-LANCET.

#### OFFICE FOR RENT

I will rent for one year my fully furnished office, with half interest in reception-room, in the Lowry Bldg., St. Paul, to a responsible physician. Am to be out of the city, so will rent at bare cost. Address 222, care of this office.

#### POSITION AS LOCUM TENENS WANTED

For four weeks during the month of June or July. Prefer a town with little or no competition. Am 30 years of age; can give best of reference; have had hospital training. Address 212, care of this office.

#### PRACTICE FOR SALE

An unopposed practice in an up-to-date town of 900 in Minnesota. Good school and churches, electric lights, city water and sewerage; fine berry and farming country; beautiful lakes; good railroads. Cash income \$2,500.00; collections good. Small amount will handle the deal; an exceptionally good place. Address 223, care of this office.

#### PRACTICE FOR SALE

One of the best locations in Minnesota. A fine city and country territory. Rich and large, thickly settled; mixed nationality. Two doctors in city. A fine residence with all modern conveniences, automobile, horse, and buggies optional. Price right. A doctor who is competent and willing to work can surely make good. If I sell I am going to California. Address 216, care of this office.

#### PRACTICE FOR SALE

Property for sale or rent. In southern Minnesota. Physician's beautiful ten-room, modern home and office, and garage in very prosperous town. Two railroads, fine school and churches; thickly settled German-Norwegian country; two towns without doctors. Practice, \$4,500, can be increased by office work and surgery; collections 100 per cent; thorough introduction. A rare opportunity. Address 217, care of this office.

#### EQUIPMENT FOR SALE

The following at your own price: Sinusoidal and Galvanic plate, Kellogg's, cost \$120; electric light bath cabinet, Kellogg's upright, sells for \$350; Oxyoline machine, Neal Armstrong, four-patient, cost \$550, used three months; portable high frequency outfit and massage tables. Will consider any reasonable offer for all or any part of above. These are all practically new. Am specializing in other work and have no use for these things. Address 221, care of this office.

#### PRACTICE FOR SALE

Northwestern Minnesota. Unopposed \$5,000 village and country practice; collections 95 per cent; nearest competition, 8, 14, 20, and 26 miles. Railroad surgeon; handle my surgical cases successfully with ethical associate in nearby town. Price \$900; includes office equipment, two driving teams, harness, buggy, cutter. A 1914 Maxwell optional at \$600. Terms two-thirds cash. Prescription supplies purchasable at invoice on easy payments from unregistered owner. Reasons for selling: Have made good and am going to larger surgical field. A real opportunity for a good man. None other need apply. Address 225, care of this office.



# The Battle Creek Method of Treating Cases of Drug Addiction

**Alcohol, Opium, Cocaine, Tobacco and Other Drug Habits**

The Battle Creek Sanitarium is not an inebriate asylum. Cases requiring physical restraint or likely to disturb other patients are not received. For a large class of intelligent persons who have through suffering become entangled in the toils of a drug habit and who are ready to co-operate with a rational effort to deliver them from the drug and from its effects the Battle Creek Sanitarium Method offers a rational, safe and remarkably comfortable means of relief and without publicity.

This is not a drug method. Drug methods often leave the patient's nervous system shattered and his condition so wretched that he is very liable soon to drift back into the old habit.

There are no tricks of hypnotism or "suggestion" in the Battle Creek Method. The rational and physiologic means employed not only remove the craving for the drug but deliver the patient from the pain or neurasthenic miseries to relieve which the drug was first used, and if faithfully employed finally reinstate the patient by removing the morbid effects resulting from the use of the drug.

A fuller account of the Battle Creek Sanitarium Method of treating drug addiction in its various forms will be sent on receipt of the attached coupon.

**The Battle Creek Sanitarium, Battle Creek, Mich.**

Box 350

**The  
SANITARIUM,  
Battle Creek,  
Michigan.**

Please send to the undersigned full information concerning the Battle Creek Method of treating cases of drug addiction.

Dr. ....

Street .....

City .....

State .....

## PUBLISHER'S DEPARTMENT

### FROM THE TWIN CITIES TO LOS ANGELES

Those who are going to the next meeting of the A. M. A., to be held next month in Los Angeles, should not overlook the splendid service offered by the Great Western road with its through special train of steel sleepers, with its observation and dining-cars superbly equipped for the comfort of its patrons.

The round-trip fare from the Twin Cities is \$63.85, by the physicians' special train, which leaves on June 15th.

For berth reservations and California literature, and all other details, address C. D. Fisher, A. G. P. A., 400 Nicollet Ave., Minneapolis.

### CREAM OF BARLEY

While barley has long been a food of pre-eminent value in the sick-room, it has an increased value in the new form, "Cream of Barley," as it is prepared and put up by The American Barley Co., of Minneapolis. Instead of being a food to be "endured" by the sick and the convalescent, it is now a food to be relished by every one; it is, in fact, a delicious breakfast food, capable of being served in several forms, and it is relished by both children and adults.

Cream of Barley is to be highly commended to physicians for their own tables, and by them for the tables of the sick, the convalescent, and the well,—the baby, the youth, and the adult.

### AN IMPROVED SACRAL REST

Messrs. Sharp & Smith, the well-known instrument makers of Chicago, desire to call attention to their improved sacral rest. The appliance has been in use in the Mayo Clinic for the past three years, and has been found to meet all the requirements of such a rest for the hips during the fitting of a plaster cast.

The use of this appliance materially aids the operator in so fitting a cast about the hip joint that all pressure-pain can be avoided; the weight-bearing area will be enlarged; the danger of bed-sores will be wholly removed; and the condition of both the cast and the patient will be conducive to best results obtainable after hip injuries.

The appliance is adaptable to the different conditions met by the surgeon; and it is of very moderate price, \$7.50.

### THYROIDS AMONG THE SPECIFICS

There are a few specific medicines. Thyroids is one of them. To get Thyroid effects, however, reliable Thyroids should be employed. The physician should insure his patient and himself by demanding Armour's when prescribing Thyroids. Armour's Thyroid products are made from selected fresh material. The glands are carefully dried at a low temperature. The powder is analyzed, and made to run uniformly 0.2 per cent of iodine in thyroid combination. Physicians interested in the standardization of Thyroids should write to Armour and Company for reprint of articles by Seidell, of the Hygienic Laboratory, and Fenger, of the Armour Laboratory, who worked in conjunction. Armour and Company supply Thyroids in powder, 2-grain, 1-grain and 1/4-grain tablets.

### DOUBLE SERVICE TIRES ARE MOST RELIABLE

The fact that an automobile tire can be depended upon to give constant service without the general troubles common to most tires make it especially desirable. The greatest tire trouble comes from punctures and the most of these are caused by tacks, small nails, and similar objects. With the *Double Service Tires* these troubles are banished as the tread of these is so thick in fabric and rubber that these small objects cannot penetrate through and reach the tube. This double tread naturally gives twice the service and therefore the tires bear the guarantee of 7,000 miles against that of 3,500 miles on the regular constructed standard tires. They carry the same air pressure as all other pneumatic tires and ride as easily. The prices of *Double Service Tires* are even lower than all other makes as will be seen from the price list published in this paper.

### BATTLE CREEK SANITARIUM

Correct posture is almost a forgotten grace. An alarmingly small percentage of adults stand or sit correctly.

At the Battle Creek Sanitarium patients and guests are under an unconscious schooling in correct posture. This is effected by the simple expedient of having chairs that make incorrect sitting relatively uncomfortable. The dining-room, the guest-room, the lobby, and even the chairs and swings on the great lawns are built along lines that insure proper posture in sitting. It is an easy matter to adjust one's self to the right method; and the good habit thus unconsciously acquired remains with one long after leaving the Sanitarium.

Correct posture is also considered in the gymnasium exercises. The combined efforts often have the happy results of taking the "kinks" of habit out of one's posture and making him as straight as a James Fenimore Cooper Indian.

### A CAMP IN JASPER NATIONAL PARK

Arrangements have been made to operate a camp in Jasper National Park this year. The Camp will be run on hotel lines, at rates from \$2.50 per day up. This will give an ideal mountain holiday to those who do not wish to organize their own parties, guides, pack-horses, etc., and will also be used as headquarters by campers who expect to make a number of individual trips. With Jasper as a base, ideal short mountain trips are readily available. It is believed that the park (situated at the southwest corner of Alberta, close to Mount Robson) will attract hundreds of tourists en route to the Pacific Coast and California Expositions.

Alaska, once the remote, romantic haunt of the gold-seeker, the trapper, and the explorer, is now open to the tourist. The hardships that were part of the prospector's life have given place to the pleasant comfort of a ride along the Grand Trunk Pacific to Prince Rupert, a charming sea voyage to Skagway on connecting steamships, and a thrilling ride over the White Pass and Yukon Route into the interior of Alaska's goldfields. The Grand Trunk Pacific route through Prince Rupert has brought Alaska two days nearer to Canada and the Middle and Eastern United States, and takes the traveler through a new territory over the entire journey from Winnipeg.



# THE JOURNAL-LANCET

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North Dakota and South Dakota State Medical Associations

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No. 12

## TRANSACTIONS OF THE NORTH DAKOTA STATE MEDICAL ASSOCIATION TWENTY-EIGHTH ANNUAL MEETING, 1915

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AMERICAN MEDICAL ASSOCIATION**

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## Proceedings of the House of Delegates

### FIRST SESSION—TUESDAY, MAY 11TH

The House of Delegates met at 8. P. M. on May 11, 1915, in the Commercial Club rooms, Bismarck. There were present, in addition to the President and Secretary, Councilors R. D. Campbell, E. A. Pray, F. R. Smyth, L. B. Green and Chas. MacLachlan; Delegates J. G. Lamont, H. H. Healy, A. J. McCannel, A. S. Nicholson, H. O. Altnow, and A. A. Whittemore.

On motion the minutes of the previous annual meeting were not read, but were approved as printed in THE JOURNAL-LANCET.

The Committee on Credentials reported, and the Delegates present were seated. The Secretary made his annual report as follows:

### SECRETARY'S REPORT

To the President and Members of the House of Delegates:

As there are murmurings from different localities in reference to the wisdom of continuing the Medical Defense proposition, and doubts expressed about its failure as a membership-getter, I am led to present the membership roster since its adoption January 1, 1912. The membership of the State Medical Association in 1911 was 370, the high-water mark of the Association. The year following the adoption of Medical Defense the membership dropped to 329. In 1913 it was 337; in 1914, 318, and in 1915 to date, 319. The falling off in numbers is due to the larger societies. In 1911 the Northwestern Society reported 74 members; it has gradually dwindled down to 59. The Grand Forks Society reported 60 members; it has shrunk to 57, albeit in 1912 they had 65. Cass

County Society has dropped from 48 in 1911 to 38 the past three years. Hettinger County, which led all other counties in 1911, having every licensed physician recorded as a member of its society, this year has made no report, and only recorded two members last year. One physician from that county sent me his dues for this year, but I returned them, telling him to apply to the Society in his district; and to date nothing more has been heard of him. I am aware that the success of any component society depends primarily upon the secretary, but he, like the other members, has work to do and cannot spend a great deal of time in drumming up members. It is a regrettable fact that the members are quite slow to make their annual remittances, which is embarrassing to the secretary, and requires a large amount of extra time to keep the members in good standing.

Then, too, the fact that societies will persist in annually changing their clerical officer, further complicates the situation, for when a secretary has learned the characteristics of the men with whom he has to deal, it certainly is an unwise move to push the job onto some other unsuspecting member, who is absent from the annual meeting. A good secretary is the life of any society, and is invaluable when in office, and he should be retained and not shifted, for his experience with the members and the method of doing the work and making the annual reports is of incalculable benefit to the society. No one man can do the work alone; and it cannot be expected that the secretary, unassisted, can keep a society on edge and preserve the roll intact. All should assist in keeping up the roster; and indeed there should be a rivalry among members to be the first to pay the annual dues and get in new material to swell the numbers. The American Medical Association has co-operated with some state associations in an effort to increase the membership of these organizations. The Association details certain men who have developed special ability in the work to make as thorough a canvass of the physicians of the State as is practicable. These men act under the advice of the officers of the state association—the President, Secretary and Councilor—and co-operate with the president and secretary of the component county or district medical societies in the district in which they work. Assignments of territory ordinarily are made from the office of the American Medical Association. They send an organizer into a Councilor District, and, if it is at all feasible, have him go directly to the county in which the Councilor for that district resides, call upon the Councilor and also the secretary of the county society, and ask co-operation. If this is impracticable, the organizer reports to the secretary of the first county medical society as he enters the district, and enlists the co-operation of the officers of that body. The organizer is provided with a list of the physicians of the county, compiled at the American Medical Association's office. He also knows the record of that office with regard to the membership of individuals in the state organization. After checking the non-members with the assistance of the secretary of the component society, he solicits membership only from those who are not objectionable to the county or state organization.

In addition to this work, he is to increase the fellowship in the American Medical Association in the county wherever possible, and is privileged to take subscriptions to *The Journal* from residents in the district. For this work the American Medical Association pays the organizer a modest traveling allowance, and a nominal salary; and, in addition, he receives commissions from new subscriptions to *The Journal*. The state medical association, co-operating in this plan, pays to the organizer, through the office of the American Medical Association, the sum of one dollar for each member of the association who is elected to membership on an application taken by the organizer and placed by him in the hands of the secretary of the local society.

The advisability of extending this co-operation to all state associations is being considered, and the arranging for these organizers to report their visits to the several states from time to time is under consideration subject to the approval of state organizations.

Second, what has been the cost per member to this association for Medical Defense for the past three years? We have paid out in retainer fees for three years \$900; for costs and trial lawyers to date, \$858.35, or a total of \$1,758.35 or \$586.11 a year, which is an average of \$1.78 per member. This expense of trials was all incurred during the years 1913 and 1914, except the retainer fee of \$300 for 1912.

While it is a fact that our cases of malpractice increased during the past two years, yet the record of cases tried and won is greatly in the majority, and the attorneys are not nearly so anxious to advise a client to commence suit, knowing that a solid phalanx of physicians are banded together for mutual protection.

The following tabulated monthly statement furnished by THE JOURNAL-LANCET shows the membership on February 1, 1914, with the additions to and cost of subscription to our official journal per month, with the total cost to the Association from February 1, 1914, to January 1, 1915:

NUMBER OF NAMES ON ROSTER				
February	...303 additions	0-303 at .0833 cts.	\$25.34	
March	.....303 additions	17-320 at .0833 cts.	26.66	
April	.....320 additions	0-320 at .0833 cts.	26.66	
May	.....320 additions	0-320 at .0833 cts.	26.66	
June	.....320 additions	5-325 at .0833 cts.	27.07	
July	.....325 additions	1-326 at .0833 cts.	27.15	
August	.....326 additions	2-328 at .0833 cts.	27.32	
September	..328 additions	1-329 at .0833 cts.	27.40	
October	...329 additions	0-329 at .0833 cts.	27.40	
November	..329 additions	2-331 at .0833 cts.	27.56	
December	..331 additions	3-334 at .0833 cts.	27.81	

\$297.03

The national association for the study and prevention of tuberculosis is anxious to secure the formal co-operation of state and county medical societies throughout the country. They have asked the secretaries of state medical associations to bring this matter to the attention of their members.

They have two specific suggestions to offer. The first is, that the state medical association, by a special resolution, urge upon all its members the importance of special training in early diagnosis of tuber-

culosis; and they are ready to place our members in touch with the best facility for accomplishing this training at the lowest possible cost. The second suggestion is that state medical associations recommend to each of their county or district societies that at least one of their meetings every year be devoted to the discussion of tuberculosis. The services of the national association for the study and prevention of tuberculosis are at the disposal of our association or any of its branches in the furtherance of either of these suggestions.

The Committee on Cancer of the Medical Society of Pennsylvania has worked for the past five years to reduce the mortality from cancer. The work has been directed to educating the laity and improving the attitude of the medical profession, with a view to obtaining more frequent early diagnosis, prompt treatment, and fewer deaths. The collected figures show that in Pennsylvania the physician has his cancer cases under observation for an average period of over one year before radical treatment is begun. The Society is working on a plan by which a large number of the medical journals in this country will have a special cancer number in July. The journals will print a large number of cancer articles, and have strong editorials on this campaign; and the journals that take part are contributing a full page advertisement, drawing attention to this matter. While the campaign is confined to the State of Pennsylvania, they are asking other states to take a part in this present cancer campaign. They are arranging for all the local societies to have a special symposium on cancer in June, and they wish to know whether our Association will take up the question and have the component societies have special cancer meetings or special symposiums during the month of June. This is a valuable opportunity for the organized medical profession to attack a disease which at present kills 75,000 of our people each year. The committee believes that these cancer meetings all over this country in June, to be followed by a flood of literature in July, will have a lasting effect and the movement will be considered a great credit to the organized medical profession and American journalism.

H. J. ROWE, M. D.,  
Secretary.

A committee, consisting of Drs. W. M. Hotchkiss, R. D. Campbell, and F. R. Smyth, was appointed, to whom were referred the officers' reports.

The Treasurer made his report as follows:

#### TREASURER'S REPORT

Treasurer's annual financial statement of the North Dakota State Medical Association for the term ending May 11, 1915:

Cash on hand, May 12, 1914..... \$1,999.07

#### RECEIPTS

Southwestern District Medical Society.....	40.00
Southern District Society.....	50.00
Richland County Society.....	60.00
Stutsman County Society.....	65.00
Trall-Steele Society.....	70.00
Stark County Society.....	85.00

Tri-County Society.....	90.00
Cheyenne Valley Society.....	110.00
Devils Lake District Society.....	145.00
Sixth District Society.....	170.00
Cass County Society.....	200.00
Grand Forks District Society.....	285.00
Northwestern District Society.....	295.00
Interest to April 1.....	44.75

Total ..... \$3,708.82

No. of  
Order.

#### DISBURSEMENTS

126 May 19, 1913, to Dr. T. Mulligan (entertainment state meeting).....	\$75.00
127 May 23, 1913, to Dr. Fannie Quain (anti-tuberculosis donation) .....	100.00
128 Aug. 8, 1913, to John C. Lowe (reporting annual meeting).....	73.00
129 Aug. 20, 1913, to JOURNAL-LANCET (subscriptions Feb. 1 to Aug 1).....	159.54
130 Oct. 3, 1913, to Dr. H. J. Rowe (account, salary as secretary).....	100.00
131 Oct. 15, 1913, to Bosard & Twiford (attorneys' fees and expenses, Pettys vs. Wood) .....	557.80
132 Nov. 9, 1913, to Casselton Reporter (letterheads and envelopes).....	3.25
133 Jan. 1, 1915, to Bosard & Twiford (services Med. Def., 1914).....	300.00
134 Jan. 1, 1915, to JOURNAL-LANCET (subs. Aug 1 to Jan. 1, 1915).....	137.49
135 Jan. 1, 1915, to Dr. H. J. Rowe (salary) .....	100.00
136 March 19, 1915, to Bosard & Twiford (Def. and Exp. in I. D. Clark case)...	160.25
137 May 8, 1915, to Casselton Reporter (500 programs and 500 letterheads).....	14.75
138 May 8, 1915, to Pioneer Pub. Co. (envelopes and stationery, Scientific Co.) .....	7.25
139 May 8, 1915, to H. O. Altnow (postage as Secretary Scientific Co.).....	3.00

Total ..... \$1,791.33

May 11, 1915, balance cash on hand.....\$1,917.49

Respectfully submitted,

C. S. CRANE, Treasurer.

The Treasurer's report was referred to the Councilors, who reported the accounts audited and found correct.

Dr. H. O. Altnow, Secretary of the Scientific Committee, reported the work done by the committee, and the method pursued in getting papers for the meeting. Letters were sent to the local secretaries asking them to be on the lookout for suitable papers to be read at the annual meeting. The work of the committee was commended.

The Committee on Arrangements reported that all the physicians in the city had responded cheerfully to what was asked of them, and that the entertainment provided would speak for itself.

The committee on Medical Defense reported as follows:



## REPORT ON MEDICAL DEFENSE

The plan of defense of the State Association in malpractice suits has now been in operation for three years without judgment having been given against anyone defended by this Committee.

During the past year two suits were defended by the Association, one against Dr. W. W. Wood, of Jamestown, wherein the case went to trial, and after a trial of eight days a verdict was rendered in favor of Dr. Wood, dismissing the action. A suit was brought against Drs. W. E. and I. D. Clark, of Harvey, Dr. I. D. Clark being a member of the Association and Dr. W. E. Clark not belonging to the same. The Association undertook the defense of Dr. I. D. Clark, and it resulted in the dismissal of the suit against Dr. Clark just at the time the trial started. The action was continued against Dr. W. E. Clark, who was defended by an insurance company, and a dismissal resulted.

The Association also rendered assistance in the suit against Dr. Hagan, of Williston, by forwarding our briefs and assisting in procuring testimony for the defense. This case was defended by an insurance company. The Association also sent to Drs. Roan, Fisher and Strauss a brief on malpractice to be used by them and their attorneys in the defense of a suit which was brought against them wherein they were defended by an insurance company. The Association also forwarded to Drs. Quain and Ramstad a brief on malpractice to be used by them in the trial of a case wherein they brought suit for fees, and the defense of malpractice was set up, but the statute of limitations had run against the malpractice defense.

There is also a suit pending by Richards against Dr. Collison, of Rugby. In this case the doctor is protected by an insurance policy, and the case will be defended by the insurance company. The Association will, however, render any assistance in the way of counsel or furnishing briefs which may be required or of use.

There are at present pending two cases, one of Philip Ott against Dr. Maercklin, which is pending at Dickinson, and one of Gustaf Thorsen against Dr. J. F. Brenckle, both of which the Association is defending.

A. J. McCANNEL, M. D., Chairman.

The President appointed Drs. H. H. Healy, Chas. MacLachlan, and A. J. McCannel as a committee to bring in nominations of officers for the ensuing year.

Devils Lake, Fargo, and Grand Forks extended invitations for the 1916 meeting of the Association.

The report of our Delegate to the American Medical Association was given as follows:

## REPORT OF DELEGATE

To the House of Delegates of the North Dakota State Medical Association.

Gentlemen:

I take this opportunity of thanking you for the very high honor you conferred upon me by electing me to represent our State Medical Association in the House of Delegates of the American Medical Association at its sixty-fifth annual meeting. I ap-

preciate this honor far more than I have words to express.

I attended all sessions of the House, and I hope this report will be not only interesting, but will contain some ideas that may be of value.

The House of Delegates met June 22, 1914, in the Solarium of the Traymore Hotel at Atlantic City, N. J. The hall was on the eighth, or top, floor of the tower, the windows giving a splendid view of the ocean, the far-famed "Board Walk," and the city. It was an ideal place to hold the meetings, there being good light, good ventilation, and cooling breezes from the ocean.

At 10 A. M. the House was called to order by the President, Dr. John A. Witherspoon, of Nashville, Tenn. The order of business was about the same as followed by our state association. The preliminary report of the Committee on Credentials was called for. The chairman reported that 71 delegates had presented credentials which conformed to the rules of the House. They were duly seated as members, and the Secretary proceeded with the roll-call. After this, 23 more delegates arrived, and, on motion, were seated.

## REPORT OF OFFICERS

President Witherspoon begged the indulgence of the House, saying that he had been ill, and was unable to prepare an address. In fact, he had risen from a sick-bed in order to be present at this meeting.

Secretary Craig presented his report for the year from May 1, 1913, until May 1, 1914. First he gave a table showing each state, the number of counties, organized and unorganized, membership, fellows, and subscribers to *The Journal*. Our State had 577 physicians, 345 belonged to our State Medical Association (I am sorry to add that this is a slight loss from previous report), 367 fellows, and *The Journal* had 344 subscribers.

The total number of fellows of the A. M. A. on May 1, 1913, was 37,913. During the year 344 fellows have died, 1,553 have resigned, 491 were dropped as being ineligible, 457 more dropped for non-payment of dues, and 29 could not be located, thus reducing the number by 2,850. To offset this, 5,990 names were added to the Fellowship roll, making an increase of 3,116 for the year, or 41,029 Fellows May 1, 1914.

A committee was appointed at the Minneapolis session to investigate the desirability of dividing the sections into two groups, viz., general and special. At the November meeting of the secretaries of the Sections it was taken up, but was considered unfavorably on account of creating more work. They asked that a special committee be appointed, to report at the 1915 meeting.

A communication from the State Medical Association of California invited the A. M. A. to hold its next meeting in San Francisco.

The Board of Trustees reported that nothing of an unusual nature had occurred during the year. All forms of activity had been marked by successful effort. The Council on Pharmacy had met the greatest opposition, more especially from the manufacturers of proprietary articles. As few of their products can receive recognition, these firms feel that it is to their interest to ignore, and even oppose,

the work of the Council. As an example, take diabetic foods. There are three or four that have been recognized, but most of them have been found fraudulent and condemned. Thus by protecting the physician the public has also been protected. "Russian Oil" will be investigated thoroughly, and its relation to liquid petrolatum published soon.

The Committee has published a book called "Useful Drugs." It has been accepted by several of the best schools, and some of the state examining boards are recognizing it in their examinations.

It is expected that the work of the Committee on Therapeutic Research will result in much good, bringing again into use well-known drugs that have been swept aside by the proprietaries.

The Chemical Laboratory has been doing splendid work. Much of the time is taken up in investigating "patent medicines." It was found necessary to increase the force in order to take care of the work, it having increased so rapidly. On account of the interest awakened in the profession, and later in the public, regarding the results in this research work, the Propaganda Department was added. This department attends to the correspondence. During the past year 1,200 letters from laymen and 3,000 letters from physicians were answered. Five years ago a letter from a layman was a rare occurrence. Frequently, the press writes regarding questionable medical advertising; and it is often necessary to advise the rejection of advertising found in some medical journals.

During the year more than 46,000 pamphlets exposing "Frauds," "Fakes," "Nostrums," "Quackery," etc., have been sold or distributed among the laity.

The total revenue of *The Journal* for the year up to January 1st was \$468,000, giving a profit for the year of \$70,000. It is this profit that takes care of the expenses incurred. The weekly circulation is 60,000 copies, and there was a gain of 3,300 names. *The Archives of Internal Medicine* and *the Journal of Diseases of Children* were issued at a slight loss. It is expected that another year will find them self-supporting.

The Medical Directory, fourth edition, shows a marked improvement over its predecessors, containing more complete information than before. All the work, except binding, has been done in the Association's own building. Special light paper was imported to save weight, but added to the cost, which was about \$58,000, and there will be a loss of fully \$4,000. Future editions can be issued at less cost on account of the fundamental facts being already gathered, so a loss will not be looked for.

The auditors said they had found the books kept in good shape, and all accounts, etc., as reported by the committees. They found a reserve of only \$140,207, which is far too small an amount considering there is a business of about half a million annually. They believed there should be at least \$300,000 in reserve, so as to meet any emergency that may arise. The profits for the year were near the vanishing point, being only \$1,191. This is due to the rapidly increasing expense of the Association in the added activities of the departments, Medical, Health, Education, Pharmacy and Chemistry, Propaganda, etc. This past year exceeded the previous year by \$20,000, and double the amount reported in 1909.

Changing the annual subscriptions so they would be uniform with the membership, meant considerable reduction of receipts; for instance, any subscriber having started his subscription in June would be billed for only half a year. In September for one-quarter of the \$5.00 paid annually.

*Standing Committees.* The Judicial Council reported that they had investigated the appeal for funds made by the "Home for Widows and Orphans of Physicians," located at Baltimore, and presented at the Minneapolis meeting. This had been carefully considered, and while the "Home" was a deserving endeavor to aid the unfortunate, the small reserve on hand made it impossible to aid such a proposition at the present time. It was recommended that such benevolence be left to the local organizations.

They recommended also that an amendment to the by-laws read as follows: "Fellowship shall be further conditioned on a physician conducting himself in accordance with the constitution and by-laws and principles of medical ethics of this Association." In explanation, this is not an effort to make this a code of rules and punishment, but only those broad rules of conduct followed naturally by honorable physicians in their dealings with their fellow-men. They called attention to the matter of public advertising and its relation to the code of ethics. It was resolved that the county medical society appoint a committee to confer with the editors of the press, furnishing such medical information as would prove interesting and beneficial to the public, without mentioning the physicians' names.

The Council on Medical Education presented a very complete report. Since its organization in 1904, the results had far exceeded their highest hopes. At that time there were one hundred and sixty medical colleges, only four having a fairly high standard, while the others were doing work of an indifferent nature. The examining boards, backed by improvements in the state laws, demanded that all applicants be well-grounded in the fundamentals, as well as the higher subjects of preliminary education, before they could enter a medical college. This resulted in cutting down the number of colleges to about one hundred, either by amalgamation or closing. This meant better work by the teachers, better buildings, better hospitals, better laboratories, better equipment, and better graduates. On October 1, 1915, eighty-two schools will demand four years high school and one or two years collegiate study as a requirement for matriculation. North Dakota requires four years high school and two years collegiate study. We may be proud of the fact that the examining board of our state took this stand at an early date, so that it would correspond to the standard required by the Medical Department of our University. It affected all students matriculating in 1908-9, and all graduates in 1912 and after. Minnesota also had the same requirements, thus placing us two years ahead of all the other states.

The Committee on Red Cross work stated that the plans were progressing most satisfactorily, and that 214 county medical societies in thirty-seven states had local committees appointed.

The report of the Committee on Health and Public Instruction contained many instructive facts.



The work done by the Committee on Conservation of Vision has been far-reaching. Thirty-nine states have a local oculist in charge, who arranges for lectures on the eye and its care. One hundred and ninety lecturers gave 340 talks, many of which were illustrated with slides. Twenty booklets were issued and nearly twenty thousand copies distributed to physicians and the laity.

The examination of school children is becoming broader in its scope. Not only the eye, ear, nose and throat receive attention, but the teeth, the chest, the general nutrition, and the mental activity are recorded as well. As the work progresses, the rural schools are also being cared for in a few localities. The results are startling. It was thought that children living in the country would show greater freedom from defect than city children, but comparisons made in Pennsylvania rural districts as compared with New York City, show the city children, even those in congested tenement districts, having 5 to 20 per cent less trouble.

The investigation of cancer has attracted considerable attention. The study of sex hygiene is broadening in its scope. There are several books now published by the Association, and "Hygiene of Women," "Hygiene and Health of Girls," and "Hygiene and Health of Children" are recommended. Three thousand libraries have received copies.

On Tuesday morning, June 23rd, there was no meeting of the House, all the Delegates attending the opening of the General Session. Dr. Witherspoon called the meeting to order at ten o'clock. After invocation addresses of welcome were given by the Mayor of Atlantic City, the President of the New Jersey State Medical Society, and the Attorney-General of the State, an address with a gold medal was presented to Surgeon-General W. C. Gorgas, Chief Sanitary Officer of the Isthmian Canal Zone. Dr. Witherspoon then introduced the new President, Dr. Victor C. Vaughan, of Ann Arbor, who gave an address on "The Service of Medicine to Civilization."

At the third meeting of the House of Delegates on Tuesday afternoon, Dr. Vaughan presided, and said he considered it the highest honor of his life to preside over this Association. He hoped to give his very best services, and that the work done by the members would result in good for the forward movement of our profession.

From this time onward the consideration of the reports by the different committees and subcommittees took up the time allotted for the meetings. No time was left to attend work in any of the Sections.

In the election of officers, four names were presented by nomination for President. Dr. Rodman, of Philadelphia, having a majority of the votes cast, was elected; first Vice-President, Dr. Fairchild, of Iowa; second Vice-President, Dr. Townsend, New York; third Vice-President, Dr. Alice Hamilton, Chicago; fourth Vice-President, Dr. Darnall, Atlantic City; Secretary, Dr. A. R. Craig, re-elected; Treasurer, Dr. W. A. Pusey, re-elected.

The report of the committee on transportation and place of meeting was presented. Nine cities invited the Association to hold the 1915 meeting with them. After a careful study of the advantages of each, the

Committee recommended that the next annual session be held at Chicago. It was moved to substitute the name San Francisco, and this carried by a vote of 33 to 28. The date of the meeting to be fixed by the Board of Trustees.

I enjoyed the meeting, even though the duties were new to me. Dr. Vaughan had been my teacher and friend, while practically all the Delegates were strangers. It was a pleasure to meet men with such high ideals. Atlantic City is an interesting place to hold such a meeting. Thus, with a pleasant trip down the Lakes, everything combined to make my vacation one long to be remembered.

All of which is respectfully submitted.

C. S. CRANE, M. D., Delegate.

## SECOND SESSION—WEDNESDAY, MAY 12TH

The House of Delegates convened at the call of the President, Dr. R. H. Beek. There were present Drs. Pray, Golseth, Green, MacLachlan, Countryman, Healy, French, Altnow, Meigs, and Cosgrove.

The report of the Committee on Tuberculosis was made as follows:

### REPORT OF TUBERCULOSIS COMMITTEE

Your Committee on Tuberculosis begs to report that we have carefully canvassed the situation, and are of the opinion that the movement is now receiving better support than at any time in the past. The North Dakota Anti-Tuberculosis Association has been more active during the past year than at any period in its history. A resume of its year's work is contained in its Annual Report. Visiting nurses in various localities have been doing splendid work for the cause. The press has been prodigal of its space and the pulpit has recognized it as one of the big problems. Willing workers everywhere inculcate the principles of the care, cure and prevention of the disease. Our Sanatorium, yet in its infancy, has progressed, even under difficulties, to the stage where it is an acknowledged power for good. Its possibilities for the future are encouraging. The 1915 Legislature reflecting public sentiment appropriated more than ever before for maintenance.

We would respectfully recommend that your Association give the Anti-Tuberculosis movement your endorsement, and such material aid as may be consistent with the condition of your finances.

All of which is respectfully submitted,

FANNIE DUNN QUAIN, M. D.,  
J. GRASSICK, M. D.,  
V. H. STICKNEY, M. D.

### REPORT OF ANTI-TUBERCULOSIS ASSOCIATION

In accordance with custom, we hereby beg to present the sixth annual report of progress in our efforts for better health conditions in our State. As in former reports, attention is directed to our special fields of activity. We have always recognized the principle of education as the foundation on which should be built the superstructure of public health. With that end in view we have to the extent of our ability not only exerted our own energies, but



have enlisted other agencies in our cause, such as the press, pulpit, schools, clubs, societies, lodges, labor organizations, municipal corporations, and other available instrumentalities that are recognized as factors in moulding public sentiment. That we have had an influence in the State may be inferred from the data furnished by our Legislatures since our Association was organized some six years ago.

Our first active work was to create public sentiment favorable to the erection and maintenance of a tuberculosis sanatorium in our State. We have never wavered from this course, and after tilling and sowing these many years, it is indeed pleasing to see the seed germinate and spring into being with the promise of a rich and bountiful harvest.

In addition to active field work, we have been accorded the privilege from time to time of appearing before the several Legislatures of our State to present our cause and to make such recommendations as we might deem expedient. In response to these appeals the following has been secured: In 1909 we got an appropriation of \$10,000 for the purchase and improvement of a site. In 1911 we received \$35,000 for the erection and equipment of buildings. In 1913 we received \$35,700 for maintenance and improvements. In 1915 we received an appropriation of over \$100,000 for similar purposes. We are not unmindful of the fact that other forces were at work, but we congratulate ourselves that we have been to some extent at least responsible for creating the sentiment that made the above results possible. From the viewpoint of what has been in so short a time accomplished, we have an enlarged vision of what the future has in store for us if we can maintain the interest which has already been created.

We gratefully acknowledge the financial assistance given us in the past. Your last year's donation of \$100.00 was used in defraying the expenses of printing and distributing two editions of "The Pennant" (8,000 copies). These little good health messengers each month go into the homes of three thousand families in our state. They also find their way into every state in the Union and to our Sister Canadian Provinces. We have endeavored to make them worthy of the cause they represent. The increasing demand for copies would seem to indicate that our efforts are being appreciated. It has been our aim to discountenance quackery in every form and to uphold the ideals of regular medicine whenever opportunities presented themselves. For this stand we have been severely censured by those who do not think as we do, but this has not changed our convictions nor caused us to deviate from our course.

Last fall in connection with the National Association, we took a church census of our State. The object being, in the absence of reliable mortality or morbidity statistics, to ascertain the approximate number of deaths occurring in the State for the preceding year. We took it for granted that nearly every one was accorded a Christian burial, and as ministers keep an account of their official acts for reporting to their several organizations, we could get a comparatively correct estimate from these sources. We sent a questionnaire to 750 ministers of all denominations in every county in the State, and re-

ceived answers from very many of them. From an analysis of these records we arrived at the interesting conclusion that we had over 1,000 deaths from tuberculosis each year, or 166 per 100,000 population (on a basis of 600,000 population for our State) as against 160.3 for the registration area 1910. This also shows that one death in every 9.3, or, in other words, 10.7 per cent of all deaths occurring in the State are from tuberculosis. This agrees almost exactly with the United States census reports of 1910. From the same data we have a total of 9,360 deaths, or 15.6 per 1,000 population, as against 13.8 of Registered Area 1912. These findings give us a working basis, and show us that our State needs active, forceful, progressive public health work, with special emphasis on tuberculosis.

We know of no line of work that gives promise of better returns for the energy expended and we know of none that could be so well taken up systematically by your Association.

All of which is respectfully submitted.

J. GRASSICK, M. D., President.

FANNIE DUNN QUAIN, M. D., Secretary.

Bismarck, N. D., May 12, 1915.

The chairman of the Council made the following report:

#### REPORT OF THE COUNCIL

To the House of Delegates of the North Dakota State Medical Association.

The Councilors of the different districts have pleasure in reporting that, as a whole, the local societies are in a flourishing condition and much interest is being taken by the members in the proceedings and discussions at the meetings.

The reports of the Councilors are herewith attached. They show the conditions in the different districts.

It is at least suggestive that the district sending in the most pessimistic report, showing lack of interest,—few members, few meetings, and these poorly attended,—should have as its headquarters the city that for years has had the highest death-rate in the State, according to the State Board of Health reports.

Local societies appear to be doing more practical work than formerly; and more interest is displayed in the discussion of clinical cases that occur in the practice of the different members than was taken in listening to scientific essays on subjects that could be better studied in the text-books.

The matter of the Defense Fund for malpractice suits has been touched upon by some of the Councilors; but, as no practical suggestions have been made and as sufficient time has not elapsed to give the present system a fair trial, it would appear best not to make any changes at the present time.

To your Councilors it would appear to be a good policy, and likely to tend to the efficiency of the members of our profession as councilors in sanitary work and preventive medicine, to invite lay members of the community to take part in the meetings and discussions on sanitary matters.

F. R. SMYTH, M. D.,

Chairman of the Council.

### REPORT OF COUNCILORS NORTHWESTERN DISTRICT SOCIETY

I herewith make report of the condition of the Northwestern District Medical Society. We have approximately 106 medical men in the district, 61 being members of our Northwestern District Society in good standing. Our membership remains practically the same, a few members moving away, and others taking their place.

Regarding Medical Defense: Our membership would indicate that the defense has little, if any, influence in obtaining new, or retaining old, members. So far this year we have held three medical meetings, all being well attended.

J. T. NEWLOVE, M. D., Councilor.

### STUTSMAN COUNTY SOCIETY

As Councilor of the Stutsman County Society, I am sorry to have to announce that last year was a very poor year with us. We had few meetings, and these were poorly attended. The membership has remained the same. Only two of the eight outside doctors are members.

Drs. Movius and Wood had a malpractice suit, which they won; but they are very much displeased with the Medical Defense.

G. GOLSETH, M. D., Councilor.

### SHEYENNE VALLEY DISTRICT SOCIETY

The Sheyenne Valley District Society has taken a decided forward movement during the past year. The members who were able to do so, met every two weeks during the winter months; and at each meeting two papers were read, a free discussion following. The season has been a profitable one. I feel confident that each year will find some such program carried out. Our membership holds to the same number.

E. A. PRAY, M. D., Councilor.

### DEVILS LAKE DISTRICT SOCIETY

The past year has been probably the best year we have ever had. Our membership has been increased, I think, four members, and the attendance has averaged much more than ever before. We met once at Rugby, and once at Dunseith Sanitarium. I believe the idea of changing meeting places is a good one, as it brings in men who would otherwise consider themselves too remote to attend and after they attend once and get acquainted, they are more apt to continue attendance, and in this way we are apt to get members whom we could not get otherwise.

As far as Medical Defense is concerned, I feel that it is popular as a business proposition, and am certain in case of lawsuits it will have a tendency to promote good fellowship and a feeling of mutual interest. I should be very sorry to see the defense feature eliminated.

G. F. DREW, M. D., Councilor.

### TRI-COUNTY SOCIETY

The Tri-County Society during the past year, I am pleased to say, has been in a flourishing condition, although our meetings have not been quite so frequent as in some other years. We have had five

meetings in all. Of these, two have been at Carington and one each at Sykeston, Sheyenne, and New Rockford. The average attendance has been eight, which is fair, considering the distances necessary to drive to reach meetings at certain points.

In previous years our meetings were usually held in the evening, but for the past year the hour has been 3 P. M., and this change enables us to make the return trip home at a good seasonable hour.

Selections of subjects from voluntary contributors are made for the next meeting, and appointees to discuss the papers read, are made by the President.

Clinical cases are shown by the members belonging where the meeting is held.

Frequently, the wives of the members accompany their husbands across the country to the place of meeting, and are pleasantly entertained by the resident hostesses.

C. MACLACHLAN, M. D., Councilor.

### SIXTH DISTRICT SOCIETY

The Sixth District Local Medical Society has held regular meetings during the year, and the members have taken great interest in the work. The attendance at the meetings has been above the average; and probably the majority at each meeting has consisted of out-of-town members who have traveled long distances to be present.

Scientific papers have, to a great extent, been dispensed with; and the members have discussed clinical cases that have occurred in every-day practice.

The membership at present is 31, which probably practically includes all the qualified physicians in the district.

The members appear to be satisfied with the present system of medical defense.

F. R. SMYTH, M. D., Councilor.

### GRAND FORKS DISTRICT SOCIETY

I hereby wish to present a short annual report of the Grand Forks District Medical Society from May 1, 1914, to April 30, 1915.

The total number of members last year was 58. This year the membership is only 57. The Society held seven meetings during the year, of which there was a total attendance of 98 members. The average attendance at each meeting was fourteen.

There were thirteen papers presented, followed by interesting discussions. It is the custom with our Society, following each meeting, to hold a lunch and smoker, which is much appreciated by the members attending. Although the interest taken in our meetings has been fairly good, there seems to be a growing lack of enthusiasm, as evidenced by the difficulty in inducing members to take part in the program, and it requires a great deal of work by the officers to keep things going along smoothly.

R. D. CAMPBELL, M. D., Councilor.

Adjourned until Thursday morning.

### THIRD SESSION—THURSDAY, MAY 13TH

The House of Delegates convened as per adjournment, and was called to order by the President. There were present Drs. Campbell, Pray,

Golseth, Green, Countryman, Healy, French, McCannel, Nicholson, Hotchkiss, and Whittemore.

The following resolution was introduced, and adopted as read:

The members of the North Dakota State Medical Association, recognizing and appreciating the valuable services that Dr. G. F. Ruediger, formerly Director of the Public Health Laboratory of this State, rendered, not only to the medical profession, but to the people of the State, by his earnest, skillful, and conscientious administration of his office, and also by his zealous efforts on behalf of all public-health measures, do rejoice at knowing of his restoration to health, after a severe illness, and trust that he may long continue to enjoy health and strength to continue the work which he loves—the protection of the public health.

The Committee on Officers' Reports made the following report, which was approved:

REPORT OF THE COMMITTEE ON OFFICERS' REPORTS  
The House of Delegates, State Medical Association.  
Gentlemen:

Your Committee, to whom was referred the reports of the Secretary and Delegate, beg to report—

That they approve of the Secretary's report and recommendations generally, but believe that the recommendations concerning cancer and tuberculosis should be referred to the Committee on Public Health.

Your Committee believes that the plan of co-operation with the American Medical Association, by which organizers would be sent into this State, should be given a trial.

Your Committee further believes that the Medical Defense Fund should be continued, as at present administered.

The report of Dr. C. S. Crane, as Delegate to the American Association meeting, is endorsed and approved.

Respectfully submitted,

W. M. HOTCHKISS, M. D., Chairman.

A recess was taken until 1 p. m.

The House of Delegates assembled as per adjournment, and was called to order by the President. There were present Drs. Campbell, Pray, Smyth, Golseth, Green, MacLachlan, Countryman, Burton, Johns, Altnow, Hotchkiss, Meigs, Whittemore, and Cosgrove.

The Committee on Nominations made the following report, which was adopted:

Dr. V. H. Stickney, President.

Dr. V. J. LaRose, First Vice-President.

Dr. Geo. M. Williamson, Second Vice-President.

Dr. E. A. Pray, Third Vice-President.

Dr. H. J. Rowe, Secretary.

Dr. W. F. Sihler, Treasurer.

Councilors: Dr. A. S. Nicholson, Northwestern; Dr. Wm. P. Baldwin, Sheyenne-Valley; Dr. G. Golseth, Stutsman County; Dr. Chas. MacLachlan, Tri-County.

Delegate to the American Medical Association: Dr. C. S. Crane; alternate, Dr. Jas. P. Aylen.

Medical Defense: Dr. C. N. Callander.

Persons recommended to the Governor for appointment on the Board of Medical Examiners: Drs. H. O. Altnow, Mandan; Benj. L. Meigs, Edgeley; H. G. Woutat, Grand Forks.

Devils Lake was selected as the meeting place for 1916.

The Auditing Committee reported that they had examined the accounts of the Secretary and the Treasurer, and found them correct.

No appropriation was made for tuberculosis work this coming year.

H. J. ROWE, M. D., Secretary.

## DISTRICT AND COUNTY ROSTER

### CASS COUNTY MEDICAL SOCIETY

#### PRESIDENT

Nichols, Wm. C..... Fargo

#### SECRETARY

MacGregor, Murdock..... Fargo

Aylen, J. P..... Fargo  
Bailey, Fred H..... Fargo  
Baillie, W. F..... Hunter  
Baldwin, W. P..... Casselton  
Bennett, C. E..... Aneta  
Burton, Paul H..... Fargo  
Busch, U. F..... Fargo  
Callander, C. N..... Fargo

Campbell, J. W..... Fargo  
Carpenter, Geo. A..... Fargo  
Clark, S. B..... Buffalo  
Darrow, E. M..... Fargo  
Fish, H. G..... Hope  
Gronwold, A. C..... Fort Ransom  
Hofmann, P. E..... Fargo  
James, J. B..... Page  
Kachelmacher, C..... Fargo  
Labbitt, L. H..... Enderlin  
Miller, H. W..... Casselton  
Morris, A. C..... Fargo  
Nelson, W. P..... Knox  
Nesse, S. A..... Enderlin

Patterson, A. G..... Lisbon  
Patterson, T. C..... Lisbon  
Rindlaub, Elizabeth P..... Fargo  
Rindlaub, J. H..... Fargo  
Rindlaub, M. P. Jr..... Fargo  
Rowe, H. J..... Casselton  
Sand, S. O..... Fargo  
Scanlon, Wm. .... Fargo  
Skelsey, A. W..... Fargo  
Sorkness, Paul..... Fargo  
Strong, T. J..... Enderlin  
Tronnes, N. .... Fargo  
Wands, E. E..... Lisbon  
Weible, R. E..... Fargo



## DEVILS LAKE DISTRICT MEDICAL SOCIETY

## PRESIDENT

Swenson, A. W. . . . . Bisbee

## SECRETARY

G. F. Drew. . . . . Devils Lake

Boyum, P. A. . . . . Devils Lake

Call, A. M. . . . . Rugby

Carter, J. A. . . . . Warwick

Claybough, W. R. . . . . Wild Rose

Cuthbert, W. H. . . . . Crary

Fawcett, W. C. . . . . Starkweather

Floew, A. T. . . . . Harvey

Hamilton, J. S. . . . . Hansboro

Harris, F. C. . . . . Cando

Horsman, A. T. . . . . Devils Lake

Jones, W. D. . . . . Devils Lake

Lamont, J. G. . . . . Dunseith

Lemieux, D. . . . . Dunseith

McGurran, C. J. . . . . Devils Lake

McIntosh, G. J. . . . . Devils Lake

Moeller, J. H. . . . . Maddock

O'Brien, W. P. . . . . Egeland

Roberts, F. J. . . . . Cando

Sihler, W. F. . . . . Devils Lake

Smith, Clinton. . . . . Devils Lake

Verrett, B. D. . . . . Rolla

Vigland, J. C. . . . . Brinsmade

Warren, J. W. . . . . Leeds

Wicklund, C. A. . . . . Churchs Ferry

Widmeyer, J. P. . . . . Rolla

## GRAND FORKS DISTRICT MEDICAL SOCIETY

## PRESIDENT

French, H. E. . . . . University

## SECRETARY

Grassick, Jas. . . . . Grand Forks

Arneberg, J. G. . . . . Grand Forks

Arneson, A. O. . . . . McVile

Beck, R. H. . . . . Lakota

Bentzen, Olaf. . . . . Grand Forks

Bristol, L. D. . . . . Grand Forks

Burrows, F. N. . . . . Bathgate

Campbell, R. D. . . . . Grand Forks

Church, Richard. . . . . Park River

Countryman, J. E. . . . . Grafton

Crane, C. S. . . . . Grand Forks

Dean, Alfred. . . . . Grand Forks

Eggers, Aug. . . . . Grand Forks

Ekern, A. . . . . Grand Forks

Emert, H. F. . . . . Sarles

Engstad, J. E. . . . . Minneapolis, Minn.

Galbraith, J. E. . . . . Cavalier

Gibson, S. G. . . . . Osnabrock

Gislason, G. J. . . . . Grand Forks

Glaspe, G. W. . . . . Grafton

Harris, C. B. . . . . Pembina

Healy, H. H. . . . . Grand Forks

Irby, M. R. . . . . Lankin

Irwin, S. H. . . . . Grand Forks

James, H. J. . . . . Bathgate

Johnson, John A. . . . . Petersburg

Joistad, A. H. . . . . Fairdale

Kammann, H. F. . . . . Hannah

Landry, L. H. . . . . Walhalla

Law, H. W. F. . . . . Grand Forks

Lommen, C. E. . . . . Fordville

McLean, R. M. . . . . Gilby

McQueen, W. W. . . . . Langdon

Marsden, C. S. . . . . Grand Forks

Montgomery, John. . . . . Ardoch

Mulligan, T. . . . . Grand Forks

Nelson, A. S. . . . . Adams

O'Keefe, Henry. . . . . Grand Forks

Olson, Chresten. . . . . St. Thomas

Peterson, O. T. . . . . Northwood

Sandven, N. O. . . . . Arnegard

Scott, W. W. . . . . Walhalla

Smith, J. C. . . . . Thompson

Suter, J. C. . . . . Grafton

Taylor, J. D. . . . . Grand Forks

Wagar, W. D. . . . . Michigan

Waldren, H. M. . . . . Drayton

Walker, J. J. . . . . Cavalier

Weed, F. E. . . . . Lankin

Welch, W. H. . . . . Larimore

Westeen, A. A. . . . . Grand Forks

Wheeler, H. M. . . . . Grand Forks

Williamson, G. M. . . . . Grand Forks

Wilson, W. C. . . . . Grand Forks

Witherstine, W. H. . . . . Grand Forks

Woutat, H. G. . . . . Grand Forks

Wylic, A. R. T. . . . . Grafton

## NORTHWESTERN DISTRICT MEDICAL SOCIETY

## PRESIDENT

Ray, R. H. . . . . Garrison

## SECRETARY

Brugman, F. A. . . . . Minot

Aaker, A. O. . . . . Velva

Anderson, C. O. . . . . Willow City

Blatherwick, W. E. . . . . Plaza

Brigham, F. O. . . . . Ross

Carr, Andrew. . . . . Minot

Christie, F. J. . . . . Burlington

Collison, H. M. . . . . Rugby

Coffin, G. H. . . . . Drake

Conner, W. H. . . . . Powers Lake

Craze, O. S. . . . . Towner

Cramond, J. E. . . . . Rugby

Critchfield, L. R. . . . . Tolley

Darland, F. L. . . . . Sawyer

Distad, O. E. . . . . Williston

Durnin, Chas. . . . . West Hope

Durnin, George A. . . . . West Hope

Erenfeld, H. M. . . . . Anamoose

Ewing, F. . . . . Kenmare

Flath, Milford G. . . . . Stanley

Grangaard, H. O. . . . . Douglas

Hagan, E. J. . . . . Williston

Hallderston, M. B. . . . . Souris

Hanson, G. C. . . . . Charlson

Hillis, S. J. . . . . Berthold

Johns, S. M. . . . . Velva

Johnson, J. A. . . . . Bottineau

Kermott, L. H. . . . . Minot

Knudson, K. O. . . . . Glenburn

Kolb, F. K. . . . . Granville

Lancaster, Blake . . . . . Crosby

Lyman, F. V. . . . . Wild Rose

MacManus, F. W. . . . . Williston

McCannel, A. J. . . . . Minot

McCannel, Archie D. . . . . Minot

McEssy, E. W. . . . . Park River

Moreland, J. W. . . . . Maxbass

Newlove, J. T. . . . . Minot

Nicholson, A. S. . . . . Max

Norris, J. L. . . . . Westby, Mont.

Nugent, O. B. . . . . Harvey

Overgard, S. . . . . Minot

Paulson, A. J. . . . . Flaxton

Pence, J. R. . . . . Minot

Perkins, J. R. . . . . Fairview, Mont.

Pierson, C. M. . . . . Ambrose

Plourde, W. A. . . . . Overly

Ransom, E. M. . . . . Minot

Ringo, G. Roy. . . . . Minot

Rogers, Joseph . . . . . Alexander

Scott, W. B. . . . . Ray

Somers, A. J. . . . . Portal

Steeves, E. O. . . . . Rugby

Stewart, M. A. . . . . Omeme

Stone, E. C. . . . . Balfour

Wheelon, F. E. . . . . Minot

Wiig, I. C. J. . . . . Flaxton

Yeomans, T. N. . . . . Minot

Youtz, H. LaMont. . . . . Willow City

## RICHLAND COUNTY MEDICAL SOCIETY

## PRESIDENT

Young, V. A. . . . . Hankinson

## SECRETARY

O'Brien, T. . . . . Wahpeton

Bean, O. G. . . . . Walcott

Christensen, W. . . . . Lidgerwood

Devine, Robt. H. . . . . Wahpeton

Durkee, C. A. . . . . Dwight

Ivers, M. U. . . . . Abercrombie

Maertz, W. F. . . . . Lidgerwood

Ryan, D. E. . . . . Hankinson

Sasse, E. G. . . . . Lidgerwood

Shields, N. J. . . . . Wahpeton

Steele, D. C. . . . . Fairmount

## SHEYENNE VALLEY MEDICAL SOCIETY

## PRESIDENT

Nolte, W. C. .... Dazey

## SECRETARY

Zimmerman, S. A. .... Valley City

Benson, R. D. .... Hannaford

Brimi, C. L. .... Cooperstown

Crary, G. H. .... Fingal

Crosby, E. B. .... Oriska

Hunt, C. E. .... Valley City

Kellog, P. M. .... Rogers

Lang, A. A. J. .... Sanborn

LeBien, E. A. .... McHenry

Macdonald, A. C. .... Fingal

Macdonald, A. W. .... Valley City

Platou, L. S. .... Valley City

Pray, E. A. .... Valley City

Spicer, C. E. .... Valley City

Stixrud, T. M. .... Litchville

Truscott, J. R. .... Binford

VanHouten, J. .... Valley City

Wanner, W. B. .... Wimbledon

Wicks, F. L. .... Valley City

## SIXTH DISTRICT MEDICAL SOCIETY

## PRESIDENT

Strauss, F. B. .... Bismarck

## SECRETARY

Bodenstab, W. H. .... Bismarck

Altnow, H. O. .... Mandan

Benson, O. T. .... Glen Ullin

Brandt, A. M. .... Bismarck

Bunting, F. E. .... Mandan

Cain, W. T. .... Underwood

Eastman, L. G. .... Hazen

Fisher, A. M. .... Bismarck

Gaebe, O. C. .... New Salem

Griehenow, F. F. .... Bismarck

Kranz, M. .... Mandan

LaRose, V. J. .... Bismarck

MacLachlan, T. M. .... Bismarck

Mathews, G. A. .... Napoleon

Mella, Hugo .... Bismarck

Nickerson, B. S. .... Mandan

Pryse, T. S. .... Dawson

Quain, E. P. .... Bismarck

Quain, F. D. .... Bismarck

Ramstad, N. O. .... Bismarck

Rasmussen, Fred .... Center

Rice, P. F. .... Cannon Ball

Roan, M. W. .... Bismarck

Schipfer, L. A. .... Bismarck

Smith, C. C. .... Stanton

Smyth, F. R. .... Bismarck

Spielman, G. H. .... Flasher

Stackhouse, C. E. .... Bismarck

Stucke, E. C. .... Garrison

Thelen, W. P. .... Wilton

Thompson, R. C. .... Wilton

Wolverton, W. C. .... Linton

## SOUTHERN DISTRICT MEDICAL SOCIETY

## PRESIDENT

Ribble, Geo. B. .... LaMoure

## SECRETARY

Meigs, Benj. L. .... Edgeley

Brenkle, J. F. .... Kulm

Campbell, C. C. .... Ashley

Grant, Geo. .... Wishek

Greene, L. B. .... Edgeley

Hillis, A. E. .... LaMoure

Maercklein, C. J. .... Gackle

Maercklein, F. W. .... Oakes

## SOUTHWESTERN DISTRICT MEDICAL SOCIETY

## PRESIDENT

Barbour, W. L. .... Richfield, Idaho

## SECRETARY

Whittemore, A. A. .... Bowman

Bordwell, F. A. .... Marmarth

Doch, J. L. .... Reeder

Ewbank, J. Nelson. .... Rhame

Munro, Neil A. .... Bowman

Murray, K. M. .... Scranton

Schneider, J. E. .... Bowman

## STARK COUNTY MEDICAL SOCIETY

## PRESIDENT

Nachtwey, A. P. .... Dickinson

## SECRETARY

Maercklein, O. C. .... Dickinson

Bowen, J. W. .... Dickinson

Brandes, H. A. .... Hebron

Chernausek, Sam. .... Dickinson

Cosgrove, J. H. .... Belfield

Davis, H. A. .... Dickinson

Furman, Raymond W. .... Richardton

Long, W. H. .... Dickinson

Museus, H. B. .... Beach

Neff, Elizabeth A. .... Emerson

O'Hage J., Jr. .... Dickinson

Perkins, George A. .... Dickinson

Schierbaum, A. F. E. .... Hebron

Smith, Oscar. .... Manning

Stickney, Victor H. .... Dickinson

Weyrens, Joseph P. .... Taylor

## STUTSMAN COUNTY MEDICAL SOCIETY

## PRESIDENT

Movius, A. H. .... Jamestown

## SECRETARY

Golseth, G. .... Jamestown

Artz, P. G. .... Jamestown

De Puy, R. G. .... Jamestown

De Puy, Thos. L. .... Jamestown

Earl, H. D. .... Jamestown

Gerrish, W. A. .... Jamestown

Guest, A. W. .... Jamestown

Hotchkiss, W. M. .... Jamestown

Longstreth, W. E. J. .... Kensal

Martin, T. P. .... Streeter

Wink, Helen K. .... Jamestown

Wood, W. W. .... Jamestown

## TRAILL-STEELE MEDICAL SOCIETY

## PRESIDENT

Haagenson, E. C. .... Hillsboro

## SECRETARY

Vinje, Syver .... Hillsboro

Abbott, John C. .... Hope

Fortun, O. J. .... Mayville

Heimark, A. J. .... Finley

Nygaard, G. .... Luverne

Savre, M. T. .... Northwood

Wadel, K. A. .... Portland

White, W. E. .... Mayville

## TRI-COUNTY MEDICAL SOCIETY

## PRESIDENT

MacKenzie, J. Ross.....Carrington

## SECRETARY

Vallancey, J. H.....Fessenden

Bartley, Wm.....Sheyenne

Brown, Fred.....McClusky

Bursma, Jacob .....Fessenden  
 Clark, I. D.....Harvey  
 Clark, W. E.....Harvey  
 Clay, A. J.....Bowden  
 Crawford, John..New Rockford  
 Donker, A. E.....Sykeston  
 Goss, E. L.....Carrington

Heinzeroth, G. E....Turtle Lake  
 MacKenzie, J. Roy..New Rockford  
 MacLachlan, Chas..New Rockford  
 McClusky, O. W.....Carrington  
 Olson, O. A.....Oberon  
 Owenson, H. A.....Grace City  
 Watson, Earl M....New Rockford

## ALPHABETICAL ROSTER

Aaker, A. O.....Velva  
 Abbott, John C.....Hope  
 Altnow, H. O.....Mandan  
 Anderson, C. O.....Willow City  
 Arneberg, J. G.....Grand Forks  
 Arneson, A. O.....McVille  
 Arzt, P. G.....Jamestown  
 Aylen, J. P..... Fargo  
 Bailey, Fred H..... Fargo  
 Baillie, W. F.....Hunter  
 Baldwin, W. P.....Casselton  
 Barbour, W. L.....Richfield, Idaho  
 Bartley, Wm.....Sheyenne  
 Bean, O. G.....Walcott  
 Beck, R. H. ....Lakota  
 Bennett, C. E.....Aneta  
 Benson, R. D.....Hannaford  
 Benson, O. T.....Glen Ullin  
 Bentzen, Olaf.....Grand Forks  
 Blatherwick, W. E.....Plaza  
 Bodenstab, W. H.....Bismarck  
 Bordwell, F. A.....Marmarth  
 Bowen, J. W.....Dickinson  
 Boyum, P. A.....Devils Lake  
 Brandes, H. A.....Hebron  
 Brandt, A. M.....Bismarck  
 Brenkle, J. F.....Kulm  
 Brigham, F. O.....Ross  
 Brimi, C. L.....Cooperstown  
 Bristol, L. D.....Grand Forks  
 Brown, Fred.....McClusky  
 Brugman, F. A.....Minot  
 Bunting, F. E.....Mandan  
 Burrows, F. N.....Bathgate  
 Bursma, Jacob.....Fessenden  
 Burton, P. H..... Fargo  
 Busch, U. F..... Fargo  
 Cain, W. T.....Underwood  
 Call, A. M.....Rugby  
 Callander, C. N..... Fargo  
 Campbell, C. C.....Ashley  
 Campbell, J. W..... Fargo  
 Campbell, R. D.....Grand Forks  
 Carpenter, Geo. A..... Fargo  
 Carr, Andrew.....Minot  
 Carter, J. A.....Warwick  
 Chernausek, Sam.....Dickinson  
 Christensen, W. ....Lidgerwood  
 Christie, F. J.....Burlington  
 Church, Richard....Park River  
 Clark, I. D.....Harvey  
 Clark, S. B.....Buffalo  
 Clark, W. E.....Harvey  
 Clay, A. J.....Bowden

Claybough, W. R.....Wild Rose  
 Coffin, G. H.....Drake  
 Collison, H. M. ....Rugby  
 Conner, W. H.....Powers Lake  
 Cosgrove, J. H.....Belfield  
 Countryman, J. E.....Grafton  
 Craise, O. S.....Towner  
 Cramond, J. E.....Rugby  
 Crane, C. S.....Grand Forks  
 Crary, G. H.....Fingal  
 Crawford, John..New Rockford  
 Critchfield, L. R.....Tolley  
 Crosby, E. B.....Oriska  
 Cuthbert, W. H.....Crary  
 Darland, F. L.....Sawyer  
 Darrow, E. M..... Fargo  
 Davis, H. A.....Dickinson  
 Dean, Alfred.....Grand Forks  
 De Puy, R. G.....Jamestown  
 De Puy, Thos. L.....Jamestown  
 Devine, R. H.....Wahpeton  
 Distad, O. E.....Williston  
 Doch, J. L.....Reeder  
 Donker, A. E.....Sykeston  
 Drew, G. F.....Devils Lake  
 Durkee, C. A.....Dwight  
 Durnin, Chas.....Westhope  
 Durnin, George A..West Hope  
 Earl, H. D.....Jamestown  
 Eastman, L. G.....Hazen  
 Eggers, Aug.....Grand Forks  
 Ekern, A. A.....Grand Forks  
 Emert, H. F.....Sarles  
 Engstad, J. E..Minneapolis, Minn.  
 Erenfeld, H. M.....Anamoose  
 Ewbank, J. Nelson.....Rhame  
 Ewing, F.....Kenmare  
 Fawcett, W. C.....Starkweather  
 Fish, H. G.....Hope  
 Fisher, A. M.....Bismarck  
 Flath, Milford G.....Stanley  
 Floew, A. T.....Harvey  
 Fortun, O. J.....Mayville  
 French, H. E.....University  
 Furman, Raymond W.Richardton  
 Gaebe, O. C.....New Salem  
 Galbraith, J. E.....Cavalier  
 Gerrish, W. A.....Jamestown  
 Gibson, S. G.....Osabrock  
 Gislason, G. J.....Grand Forks  
 Glaspel, G. W.....Grafton  
 Golseth, G. ....Jamestown  
 Goss, E. L.....Carrington  
 Grangaard, H. O.....Douglas  
 Grant, Geo.....Wishek

Grassick, Jas.....Grand Forks  
 Greene, L. B.....Edgeley  
 Griebenow, F. F.....Bismarck  
 Gronwold, A. C....Fort Ransom  
 Guest, A. W.....Jamestown  
 Haagenon, E. C.....Hillsboro  
 Hagan, E. J.....Williston  
 Halldorson, M. B.....Souris  
 Hamilton, J. S.....Hansboro  
 Hanson, G. C.....Charlson  
 Harris, C. B.....Pembina  
 Harris, F. C.....Cando  
 Healy, H. H.....Grand Forks  
 Heimark, A. J.....Finley  
 Heinzeroth, G. E....Turtle Lake  
 Hillis, A. E.....LaMoure  
 Hillis, S. J.....Berthold  
 Hofmann, P. E..... Fargo  
 Horsman, A. T.....Devils Lake  
 Hotchkiss, W. M.....Jamestown  
 Hunt, C. E.....Valley City  
 Irby, M. R.....Lankin  
 Irwin, S. H.....Grand Forks  
 Ivers, M. U.....Abercrombie  
 James, J. B.....Page  
 James, H. J.....Bathgate  
 Johns, S. M.....Velva  
 Johnson, J. A.....Bottineau  
 Johnson, John A.....Petersburg  
 Joistad, A. H.....Fairdale  
 Jones, W. D.....Devils Lake  
 Kachelmacher, C..... Fargo  
 Kammann, H. F.....Hannah  
 Kellog, P. M.....Rogers  
 Kernott, L. H.....Minot  
 Knudson, K. O.....Glenburn  
 Kolb, F. K.....Granville  
 Kranz, M.....Mandan  
 Labbitt, L. H.....Enderlin  
 Lamont, J. G.....Dunseith  
 Lancaster, Blake.....Crosby  
 Landry, L. H.....Walhal'a  
 Lang, A. A. J.....Sunborn  
 LaRose, V. J.....Bismarck  
 Law, H. W. F.....Grand Forks  
 LeBien, E. A.....McHenry  
 Lemieux, D.....Dunseith  
 Lommen, C. E.....Fordville  
 Long, W. H.....Dickinson  
 Longstreth, W. E. J.....Kensal  
 Lyman, F. V.....Wild Rose  
 Macdonald, A. C.....Fingal  
 Macdonald, A. W.....Valley City  
 MacGregor, Murdock..... Fargo



MacKenzie, J. Ross..Carrington	Owenson, H. A.....Grace City	Steele, D. C.....Fairmount
MacKenzie, J. Roy..New Rockford	Patterson, A. G.....Lisbon	Steeves, E. O.....Rugby
MacLachlan, Chas..New Rockford	Patterson, T. C.....Lisbon	Stewart, M. A.....Omemee
MacLachlan, T. M.....Bismarck	Paulson, A. J.....Flaxton	Stickney, V. H.....Dickinson
MacManus, F. W.....Williston	Pence, J. R.....Minot	Stixrud, T. M.....Litchville
McCannel, A. J.....Minot	Perkins, Geo. A.....Dickinson	Stone, E. C.....Balfour
McCannel, Archie D.....Minot	Perkins, J. R.....Fairview, Mont.	Strauss, F. B.....Bismarck
McClusky, O. W.....Carrington	Peterson, O. T.....Northwood	Strong, T. J.....Enderlin
McEssy, E. W.....Park River	Pierson, C. M.....Ambrose	Stucke, E. C.....Garrison
McGurran, C. J.....Devils Lake	Platou, L. S.....Valley City	Suter, J. C.....Grafton
McIntosh, G. J.....Devils Lake	Plourde, W. A.....Overly	Swenson, A. W.....Bisbee
MacLachlan, T. M.....Bismarck	Pray, E. A.....Valley City	Taylor, J. D.....Grand Forks
McLean, R. M.....Gilby	Pryse, T. S.....Dawson	Thelen, W. P.....Wilton
McQueen, W. W.....Langdon	Quain, E. P.....Bismarck	Thompson, R. C.....Wilton
Maercklein, C. J.....Gackle	Quain, F. D.....Bismarck	Tromnes, N. ....Fargo
Maercklein, F. W.....Oakes	Ramstad, N. O.....Bismarck	Truscott, J. R.....Binford
Maercklein, O. C.....Dickinson	Ransom, E. M.....Minot	Vallencey, J. H.....Fessenden
Maertz, W. F.....Lidgerwood	Rasmussen, Fred .....Center	Van Houten, J.....Valley City
Marsden, C. S.....Grand Forks	Ray, R. H.....Garrison	Verrett, B. D.....Rolla
Martin, T. P.....Streeter	Ribble, George B....La Moure	Vigland, J. C.....Brinsmade
Mathews, G. A.....Napoleon	Rice, P. F.....Cannon Ball	Vinje, Syver .....Hillsboro
Meigs, Benj. L.....Edgeley	Rindlaub, Elizabeth P.....Fargo	Wadel, K. A.....Portland
Mella, Hugo .....Bismarck	Rindlaub, John H.....Fargo	Wagar, W. D.....Michigan
Miller, H. W.....Casselton	Rindlaub, Martin P., Jr...Fargo	Waldren, H. M.....Drayton
Moeller, J. H.....Maddock	Ringo, G. Roy.....Minot	Walker, J. J.....Cavalier
Montgomery, John.....Ardoch	Roan, M. W.....Bismarck	Wands, E. E.....Lisbon
Moreland, J. W.....Maxbass	Roberts, F. J.....Cando	Wanner, W. B.....Wimbledon
Morris, A. C.....Fargo	Rogers, Joseph .....Alexander	Warren, J. W.....Leeds
Movius, A. H.....Jamestown	Rowe, H. J.....Casselton	Watson, Earl M....New Rockford
Mulligan, T.....Grand Forks	Ryan, D. E.....Hankinson	Weed, F. E.....Lankin
Munro, Neil A.....Bowman	Sand, S. O.....Fargo	Weible, R. E.....Fargo
Murray, K. M.....Scranton	Sandven, N. O.....Arnegard	Welch, W. H.....Larimore
Museus, H. B.....Beach	Sasse, E. G.....Lidgerwood	Westeen, A. A.....Grand Forks
Nachtwey, A. P.....Dickinson	Savre, M. T. ....Northwood	Weyrens, J. P.....Taylor
Neff, Elizabeth A.....Emerson	Scanlon, Wm. ....Fargo	Wheeler, H. M....Grand Forks
Nelson, A. S.....Adams	Schierbaum, A. F. E....Hebron	Wheeler, F. E.....Minot
Nelson, W. P.....Knox	Schipfer, L. A.....Bismarck	White, W. E.....Mayville
Nesse, S. A.....Enderlin	Schneider, J. E.....Bowman	Whittemore, Arthur A..Bowman
Newlove, J. T.....Minot	Scott, W. B.....Ray	Wicklund, C. A....Churchs Ferry
Nickerson, B. S.....Mandan	Scott, W. W.....Walhalla	Wicks, F. L.....Valley City
Nichols, Wm. C.....Fargo	Shields, N. J.....Wahpeton	Widmeyer, J. P.....Rolla
Nicholson, A. S.....Max	Sihler, W. F.....Devils Lake	Wiig, I. C. J.....Flaxton
Nolte, W. C.....Dazey	Skelsey, A. W.....Fargo	Williamson, Geo. M. Grand Forks
Norris, J. L.....Westby, Mont.	Smith, C. C.....Stanton	Wilson, W. C.....Grand Forks
Nugent, O. B.....Harvey	Smith, Clinton.....Devils Lake	Wink, Helen K....Jamestown
Nygaard, G. ....Luverne	Smith, J. C.....Thompson	Witherstine, W. H..Grand Forks
O'Brien, T.....Wahpeton	Smith, Oscar.....Manning	Wolverton, W. C.....Linton
O'Brien, W. P.....Egeland	Smyth, F. R.....Bismarck	Wood, W. W.....Jamestown
O'Keefe, Henry.....Grand Forks	Somers, A. J.....Portal	Woutat, H. G.....Grand Forks
O'Hage J., Jr.....Dickinson	Sorkness, Paul.....Fargo	Wylie, A. R. T.....Grafton
Olson, Chresten.....St. Thomas	Spicer, C. E.....Valley City	Yeomans, T. N.....Minot
Olson, O. A.....Oberon	Spielman, G. H.....Flasher	Young, V. A.....Hankinson
Overgard, S .....Minot	Stackhouse, C. E.....Bismarck	Youtz, H. LaMont...Willow City
		Zimmerman, S. A....Valley City

## PRESIDENT'S ADDRESS

BY R. HUDSON BEEK, M. D.

LAKOTA, NORTH DAKOTA

Let me preface my few remarks by thanking you for the honor conferred upon me in electing me to the presidency of this Association, which is composed of the representative men of the profession in North Dakota. To be called to act as its president is an honor of which I am deeply sensible.

The past year has been a momentous one in the history of the world, and events are transpiring that bid fair to change the political complexion of a large part of it. War, with all its privations and horrors, is abroad in the old world; and we are witnesses of a large part of the civilized world being engaged in activities which, it would seem, can result only in disaster, no matter who is the victor. In our country peace reigns, and each individual is permitted to pursue his own lawful activities without restriction. Our attention and activities are concerned in bettering our affairs and our energies are directed in peaceful channels.

The members of the profession in the countries at war have displayed the same spirit as in times of peace, and have not been laggard in leaving homes and families and practices to take their places where most needed; and it is these men who will make the medical history of this the greatest war of all ages; and I prophesy that when the history of this event shall have been written, and when the events transpiring shall have been reviewed by calm reasoning, it will be found that modern medical and surgical ideas, put into execution by the rank and file of the profession, have been responsible for increased efficiency in the troops, and that disease in epidemic form will not prevail.

We read in the daily press of seriously wounded soldiers going back to the front after a few weeks of hospital residence and treatment. This has not been known before, except in a few and fortunate cases; and it should be a glowing tribute to the skill of the medical staffs of the various armies.

The profession of our own country is represented in the care of the European belligerents, acquitting themselves with credit and honor.

But while war has its victories, peace also may claim triumphs. This past year has witnessed the opening of the Panama Canal, a monumental engineering feat, made possible because the medical profession was quick to see wherein lay the

failure of a previous venture. Modern medicine, working hand in hand with engineering skill, made possible the fulfillment of the desires of the American public. Reed and Lazear did not lay down their lives in vain. The plague, securing a foothold in our country in two widely separated cities, has been almost entirely eradicated, no human cases have occurred for weeks, and but few cases among rats, the reputed carriers of plague. Modern sanitation, as evolved and carried out by medical men, has been the means of repelling this disease.

The past year has also witnessed an increased opposition on the part of the press toward quacks. A better and fuller understanding of the aims and ideals of qualified and reputable medical men seems to be gradually obtaining, and many of the leading newspapers are lending their aid in spreading this knowledge. The newspapers, too, have in many cases voluntarily reduced the income from their advertising space by refusing medical advertisements. This commendable stand has been taken by the press on its own volition, and has resulted in our being able to have access to clean newspapers.

Patent-medicine frauds are still with us, but the good work that the *Journal of the American Medical Association* is engaged in, has been the means of exposing many of these impostors. The Federal Government has in many cases issued fraud orders, and put many concerns out of business by refusing them the use of the mails.

Just a few weeks ago the Harrison law was made operative, and we have, for the first time, I believe, a national law aimed to regulate the sale of habit-forming narcotic drugs. There has been much misunderstanding on the part of physicians as to their procedure under this law, and some complaints. Really, its provisions are few and simple, and if we have thought that we were having hardships heaped upon us, I am sure all would be willing to undergo them for the sake of restricting the traffic in these drugs. This law should receive the hearty support of every reputable physician.

Medical legislation during the last session of our Legislature was conspicuous by its absence. The only law, I believe, passed in which physicians of the State might have an interest, was the one forming an examining board of so-called Chiropractors. Much regret has been felt that

the Legislature at its last session could not see its way clear to make possible a whole-time health officer for the State. On the necessity for such an officer there can be no argument. The men who have had the care of the State health in their hands under our present laws, have each and all proven themselves efficient, and have had to make sacrifices that they should not be called on to make. The extremely modest compensation allowed for the expenses of the office can only mean that the people of North Dakota are willing for some one to serve them in a vital capacity for practically nothing, for no one can afford to take the office and administer its affairs at the present salary. The health of this great unit of the United States is of enough importance, it would seem, to occupy the entire attention of a well-qualified health expert.

The Tuberculosis Sanitarium at Dunseith is an institution of which we may well be proud. Although under the administration of a very able man, the work of the institution has been greatly hampered in the past by lack of State aid. Provision was made last winter by the State Legislature for a considerable amount of money, nearly as much as asked for, I believe. This appropriation will enable more and better work to be done, and will relieve some of the unfavorable conditions heretofore existing. The publicity given this particular work by the anti-tuberculosis society of this State has had much to do with creating a widespread knowledge of what may reasonably be expected of proper institutional treatment of suitable tubercular cases, and should be an object lesson for all to hope that in the near future the general health of North Dakota will be placed under the care of one qualified man who can give his whole time to the work. There is just as much need that the superintendent of public health devote his entire time to the work as there is that the superintendents of our sanitariums and different State hospitals give their whole attention to their work.

A few years ago this Association authorized a plan of defense in connection with malpractice suits brought against members. This plan provided for defraying the expenses of these suits, but did not provide for the payment of judgments, should they be obtained. A reputable firm of attorneys were retained by the Association. The Association has defended several suits so that now we are in a position to know the workings of the plan. The bills in these several suits have been very large; and it does not seem to me that we can carry on this plan without an increase in the dues.

The line insurance companies operating in this field originally charged a premium of \$15.00 a policy, but a few years ago this premium was raised to \$25.00. The reason given was that the business was carried on at a loss. They paid judgments when obtained, as well as defended the case. If at \$15.00 the business was found unprofitable, and an increase of two-thirds was made by these companies, I cannot see how this Association can offer this protection, less the payment of obtained judgments, at our present dues. I would not be in favor of raising the dues, but I would recommend the abolishment of medical defense by the Association.

With the practical abolishment of the great medical clinics of Europe, by reason of the war, attention has been more directly centered on the great clinics already existent in America; and it would seem that these clinics will demonstrate to everyone that they are equipped to give everything that any clinic in Europe can give.

It will probably be several years before the disorganization wrought by the war is overcome, and economic life becomes normal. During this period of depression, and possible re-construction, every trade and profession will suffer, and we may well expect that the great clinics of Europe will feel this depression in a keen manner.

Already plans are being formulated in one of our large cities for the establishment of a large and finely organized clinic; and we may reasonably expect that opportunities for postgraduate work in this country will receive the attention they so well merit.

Medical research during the past year has been active. Much work on cancer-formation has been done; and, while we may not be much nearer a solution of this great problem, we may feel that the time is surely coming when the causes of this scourge will be thoroughly known, and that the work now being done was a necessary preliminary. The discovery of ameba as the cause of pyorrhea alveolaris in a large percentage of cases, and the use of emetin in its treatment has been a notable advance, and has served to show how closely connected is the laboratory with the active practical side of medicine.

In conclusion, I wish to express my thanks to the officers of this Association and also to the members who have so generously given of their time and experience in preparing for this meeting. I also extend, on behalf of this Association, a hearty and cordial welcome to those who are among us as our guests, and accord to them the privileges of the floor in our discussions.



## AVOIDABLE ERRORS IN THE DIAGNOSIS OF CARDIAC INSUFFICIENCIES\*

By CHARLES LYMAN GREENE, M. D.

Professor of Medicine, and Chief of the Department, University of Minnesota  
ST. PAUL

In no field has medicine made greater recent progress than in that of cardiac disease, and we should now reap the therapeutic rewards of rational etiology and improved diagnostic technic.

As affecting the individual patient, prevention, early recognition, retardation, and prompt and effective treatment are almost as important in cardiovascular insufficiencies as in pulmonary tuberculosis.

With respect to prolongation of life, a timely and intelligent therapeutic initiative based upon an accurate knowledge of the hitherto neglected minor signs and symptoms, is nearly as important and fruitful in the one condition as in the other.

Much will be done from this time on to prevent the infections, acute and recurrent alike, and to remedy the various conditions of sub-nutrition which together are responsible for nearly all cases of heart disease encountered by the physician.

We now know that acute rheumatism, the most potent factor in the etiology of cardiac disease, is due to a definite infection by a specific organism; and the work of Poynton and Paine in Great Britain and of E. C. Rosenow in our own country has proven that in all such cases one may recover the streptococcus rheumaticus from the subserous connective tissue about acutely inflamed rheumatic joints. Rosenow has shown that this organism, together with the streptococcus (viridans) responsible for chronic recurring infective endocarditis, and various other streptococci exhibiting selective affinities for the endocardium, skeletal muscles, and myocardium, are all strains of the hemolytic streptococcus, modified by conditions of oxygen pressure, which may now be accurately reproduced in the test-tube.

To both American and foreign workers we owe our present knowledge of the chronic foci of infection accountable for acute rheumatism, various chronic diseases of the joints, obscure arthritides, and ill defined conditions associated with chronic malnutrition and semi-invalidism, which we have hitherto been unable to correct

because of our ignorance of their infective basis and of the various loci.

The sources of chronic recurrent infection have been proven to be, first, and most important, the tonsils; second, the accessory nasal sinuses; third, the gums and jaws; fourth, the prostate gland and deep urethra; fifth, other points of chronic infection, such as the gall-bladder and appendix.

In the tonsil chronic cryptogenetic infection is extremely frequent; and, whatever may be the outward appearance or the surface flora of such diseased structures, their crypts almost invariably contain streptococci, often in pure culture, which show the same variations and selective affinities as do the strains produced by Rosenow in the test-tube.

The tonsils are natural incubators and commissaries, and afford variations in oxygen supply, such as exactly fit the requirements of transmutation.

The results of extirpation in cases of recurrent acute rheumatism or the various forms of chronic arthritis, have been remarkable, and attest the accuracy and importance of the clinical observation that attacks of acute rheumatism are almost invariably preceded by sore throat, often so slight or so far antedating the actual arthritis as to escape notice.

A typical slow sepsis is the picture in nearly every instance, the tonsillitis preceding the joint symptoms by a period varying from a few days to three weeks. Recurrent dilatation of the heart is an extremely common result of recurrent obscure toxemia arising from concealed septic foci.

Cardiopathies fall readily into two broad age-groups, one representing the first three decades of life, embracing congenital lesions and showing a predominance of the mitral endocarditis; the other covering the later periods of life, including chiefly the myocardial degenerations, relative or secondary mitral insufficiencies, and diseases of the aortic valves, of the aorta itself, and of the general arterial system.

The relative rarity of aortic disease in young people is now made clear by our recently attained knowledge of the extraordinary frequency of syphilis as an etiologic factor in the lesions of

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the adult, and that infection of the myocardium, and yet more frequently of the aorta and aortic valves, is a relatively early event in a surprisingly large number of cases of lues.

Once established, the disease is usually slow and persistently progressive, not becoming clinically manifest as a cardiovascular lesion until the late tertiary period, years after infection, when all other clinical signs of the original causative disease may be, and usually are, absent. The great importance of antiluetic treatment in the older cardiovascular group is self-evident.

Yet another factor in etiology, which the writer has for years been endeavoring to emphasize, may be found in the reaction of the myocardium to acute prostrating infections of various kinds; and we must learn that, through prompt recognition of the myocardial toxemias and greater care during convalescence, we may often prevent serious and progressive damage to the heart.

In the past, despite the common knowledge that subjective weakness is one of the earliest manifestations of acute myocardial degeneration or inflammation, we have failed to attribute to its chief cause the extreme and rapidly induced subjective weakness and exhaustion encountered in such diseases as acute rheumatism, true influenza, and scarlatina; nor have we apparently given much consideration to the logical probability that almost any severe infectious disease of considerable duration must, to a greater or less degree, involve the myocardium, whether or not this change be manifest and demonstrable, transient, as is usually the case, or more or less permanent.

The marked discrepancy between the degree of weakness felt by the patient, and the comparatively small loss of skeletal muscle strength shown by dynamometric tests or by even simpler methods, are matters of every-day observation, not wholly explainable by the effect of a toxemia upon the nervous system, though this is doubtless an important contributory factor in some diseases, chief of which is diphtheria.

As your essayist has so often stated, if one recalls the fact that the intrinsic circulation of the myocardium is proportionately tenfold that of the skeletal muscles, that this delicate and highly specialized structure can never rest, and is constantly flooded with toxic blood during an acute infection, one can hardly doubt the reasonableness of such assumption. As con-

firmatory evidence we find that modern instrumental methods show the great frequency of various grades of heart-block and other indications of impaired myocardial function in the acute infections; and additional proof is afforded by the frequency with which modern percussion methods demonstrate slight or even marked silent dilatation during the active stage of the disease or early in convalescence.

Subjective symptoms other than that of weakness or exhaustion are not lacking; and if we put aside the erroneous notion that fever in itself and of itself greatly modifies heart-sounds we shall make still greater progress in the recognition of these changes, be better able to protect our patients from any attempt at forced resumption of the activities of life, and oftentimes save them from a progressive myocardial degeneration, which may first become manifest by obtrusive symptoms years later.

Our two great problems lie along the lines of prevention and the early recognition of decompensation; and we may ask to what extent and through what means we are now able to compass the latter.

Six decided steps in advance may be noted, namely:

1st. *A growing realization of the great importance and diversity of subjective symptoms of cardiac origin and a more accurate knowledge of the nature and distribution of any discomfort or actual pain arising from the same source.*

2d. *A more accurate standard of heart dimensions, and a knowledge of the relation which they bear to age and musculature.*

3d. *The great increase in accuracy of delimitation afforded by modern percussion methods and the Röntgen ray.*

4th. *The response of the subjective or objective symptoms and of the percussion outline to tentative therapeutic measures.*

5th. *The knowledge that both the wholly normal and the fully compensated though crippled heart fail to respond to therapeutic doses of digitalis.*

6th. *A more complete comprehension of the fact that the term "compensation" is merely relative and that incompensation may be most damaging even though unobtrusive.*

Any proper comprehension of cardiovascular ailments must rest upon the primary and basic clinical fact that the true problem is always the state of the myocardium.

It is useful and necessary that one should attempt to differentiate the various valvular lesions of the heart, and a knowledge of the existence of this or that individual lesion has a definite bearing upon both prognosis and treatment, yet even in such instances it is the state of the heart-muscle, invariably diseased to a greater or less extent, which determines the after-lifetime of the patient.

One has only to recall the inevitable sequence of events in any case of valvular disease to realize that, both primarily and secondarily, periods of cardiac fatigue and narrowing of the field of myocardial response must occur, which in most instances wholly lack the gross manifestations of cardiac insufficiency which, in the past, have constituted our sole justification and indication for therapeutic interference.

Minor incompenations must and do inevitably occur sooner or later in the history of all heart lesions not terminated by intercurrent disease, whether these be primarily myocardial or endocardial; and these periods occur at increasingly frequent intervals and with a progressively damaging effect upon the crippled heart.

Minor and major illnesses, mental and physical strain, mere malnutrition, congenital or acquired, or, in the later stages, the mere stress and strain of daily life, unless this be modified by proper direction and control, must by the very logic of known cardiac pathology create such periods of insufficiency. Fortunately, these are usually transient, and often, through a purely subjective effect, force the unconscious patient to take the rest necessary to gradual myocardial rehabilitation, yet they are damaging, and are largely avoidable under proper management and direction.

One of the most interesting phases of modern progress is seen in the better understanding of the purely subjective expressions of diminished cardiac response and reserve, whether these take the form of dyspnea, weakness, discomfort, or actual pain.

We now know that the mere sensation of weakness, inability to perform sustained work, lack of concentration, drowsiness, apathy, disturbances of sleep, and many similar symptoms not limited to or pathognomonic of cardiac insufficiency, but common as suggestive manifestations of it, may become important confirmatory factors in the diagnosis. In many instances the peculiar symptoms of psychasthenia occur, and the case is too commonly relegated

to that *limbo of diagnostic insufficiency* which still bears the meaningless name of "neurasthenia."

Subjective dyspnea, together with the lesser grades of manifest shortness of breath on slight exertion, and the mere feeling that tasks ordinarily performed easily are become a burden, are not without clinical significance; and when we come to consider actual distress or pain of cardiac origin we encounter one of the most interesting phases of the modern development of diagnosis in relation to heart lesions.

Various observers, but chiefly Henry Head, have shown the astonishing variations in discomfort, pain and coincident or residual hyperesthesia, which may result from cardiac disease; and we now understand that this distribution may be misleadingly remote from the heart itself and attributable, not only to secondary congestions of distant organs, but far more often to the fact that the sensory distribution of the expressions of cardiac distress follow embryologic pathways.

The auricles may refer their pain to the lower axilla and shoulders; and the ventricles, not only to the chest wall, but to the epigastrium, inner aspect of the upper arm, ulnar surface of the forearm and wrist, and the fingers. Pain from the ascending aorta and aortic-valve region may affect the entire neck and even the occiput. Cases of major angina pectoris may involve the entire chest, neck, and upper abdomen, and may be associated with or leave behind a marked and most misleading hyperesthesia.

Mere discomfort of cardiac origin is so frequently epigastric as to lead the majority of these patients to complain of the stomach primarily, rather than the heart, and one must be constantly on his guard lest he be misled by that fact and by long-cherished tradition into an *exclusive* consideration of the former.

This caution is especially applicable to the cases in individuals over forty years of age; and the rule should be that we examine both stomach and heart with a full appreciation of the fact that a dilated, over-strained heart-muscle is peculiarly sensitive to reflex stimuli and direct pressure alike, and also is prone to refer its own pain and discomfort to the epigastrium.

The not infrequent occurrence of severe referred pain of cardiac origin over the gall-bladder, stomach, or descending colon has been a source of many futile operations, all the more



readily undertaken because of the frequent coincidence of marked tenderness.

The source of pain in cardiac disease may vary considerably, but, in the main, undoubtedly represents the distress of hollow muscle overstrain, fatigue, and lessened blood supply, whether local or general. This is well exemplified in the painful spasms in the intestinal tract and many other similar conditions.

The heart, like the other viscera, is quite insensitive as to its parenchyma, but undoubtedly reacts excessively under overstrain combined with insufficient blood supply or actual exhaustion.

We can no longer assume that the pain of angina pectoris major is necessarily due to diseases of the coronary arteries, for it has been clearly shown that marked changes in these vessels may exist in persons who have never complained of severe angina, and, on the other hand, that the syndrome may arise in cases of myocardial degeneration in which no decided disease of the intrinsic arteries can be demonstrated post-mortem.

In severe cases of this type closely observed by the author, it seemed evident that during the paroxysm a certain amount of demonstrable acute dilatation was present; and in the greater number of instances a sharp rise in blood-pressure has been evident. It is probable that several factors must be held accountable for the syndrome bearing the name of angina pectoris; and it is equally probable that the term "pseudo-angina pectoris" may well be dropped.

Furthermore, the writer has been impressed by the frequency with which he has encountered cases of minor angina which were more or less complete replicas in miniature of the major attacks, even to the curious conviction of impending dissolution so characteristic of the major seizures and so different from the mere apprehension, such as may attend simple palpitation.

The question of pain of cardiovascular origin is greatly simplified if one recalls to mind the fact that even skeletal muscles, when forced to a point of extreme fatigue under maximum exertion, respond precisely as the heart does, and with the same variation in degree of pain.

Time will not permit a full discussion of the many interesting variations under this head; but with respect to subjective symptoms in general, one must remember that they are many and varied, that few of them are peculiar to cardiac disease, and that the fundamental factors in their interpretation are:

1st. The relation of their onset to concurrent or antecedent physical exertion, psychic excitation, or toxemia.

2d. Their association with the lesser grades of demonstrable dilatation.

3d. Especially in the case of the middle-aged patients and, to a less degree, in younger persons, their relation to excitement or emotional strain.

4th. The favorable response, both of subjective symptoms and of any increased cardiac outline, to cardiac stimulation, with or without physical rest or regulated exercise, as may be indicated.

It would be difficult or impossible to make a positive diagnosis of cardiac insufficiency on the basis of subjective symptoms alone, save in the cases of typical angina pectoris major, which is usually unmistakable.

But, fortunately, if any material insufficiency is present, the modern percussion methods almost invariably show a suggestive extension of the cardiac boundaries controllable through appropriate rest and medication, and reveal to any careful and expert observer the fact that a great number of silent dilatations exist, which, even when of marked degree, are, all too frequently, overlooked.

Our former dependence upon a loosely determined standard, a fixed transverse diameter, or rather a mere semidiameter, arose primarily from the failure to realize the differences in size and profile of the hearts of various individuals, the dependence of both size and form upon the skeletal musculature and the osseous structure of the individual, to a lesser extent upon an erroneous belief in the existence of normal hearts of great size lacking both hypertrophy and dilatation, and finally upon the utter inadequacy of the older flat-finger percussion to sharply define the cardiac border.

By the use of orthopercussion, with or without the co-employment of the threshold method of Goldscheider, one may define both the left and right transverse radii of the heart with surprising accuracy, as has been shown by numerous published reports in which orthodiagraphic observations were used to check percussion.

We are, therefore, no longer satisfied with the percussion of the left border and the major part of the right ventricle, as was formerly the case, but determine the median right and median left measurements along the 4th and 5th interstices, respectively, according to the method employed

by Moritz and Dietlen and von Grödel, who have definitely established normal variations for the recumbent and sitting postures, respectively.

The mamillary line was always an absurdity as a landmark, and has now been cast aside, together with the parasternal line, which shared with the former its entire lack of stability in any fixed relation.

It is interesting to see the figures representing the observations of the two observers first mentioned; and one has only to lay out upon his own chest the distances from the median line representing normal areas to realize how many cases of dilatation formerly escaped notice.

The writer has been especially concerned for several years with a study of the drop-heart (*tröpfen-form Herz*) of congenital universal asthenia, and has been astonished to find how many of these more or less chronically undernourished and poorly built splanchnoptotic individuals, carry a dilated and symptom-producing organ. In such individuals the heart itself when undilated yields a very narrow area to percussion, is extremely movable, and hangs low. The muscle is extremely dilatable, and shows little or no tendency to hypertrophy, even though suffering from long-continued overstrain, but reacts promptly to medication, proper oversight and direction, and improved nutrition.

Any one who fails to bear in mind the relationship of such small narrow hearts to the asthenic structural peculiarities must inevitably fail to recognize dilatations, for certain drop-hearts may double their normal dimension through dilatation, and still fall within the boundaries hitherto prescribed for the normal heart.

With respect to the heart sounds: the chief need for the student or physician is a thorough familiarity with the characteristics of normal tones, their accentuation and permissible variations, together with a mental attitude which insists upon the presence of a normal sound or a substantial reason for its absence. This attitude is particularly necessary in connection with the early recognition of both endocarditis and myocarditis in association with acute infections, for in all of these conditions the early manifestations are slight, and, indeed, in mitral stenosis no change whatever is ordinarily apparent for a long period.

Finally, and of cardinal importance, is the question of the response of symptoms and more especially of any cardiac outline established by percussion to therapeutic doses of digitalis or its congeners.

A number of observers, among whom are Fraenkel and Cloetta, have apparently established conclusively the fact that no demonstrable change occurs in the outline of the normal heart, and, it is claimed, even in that of the well-compensated diseased heart under such therapeutic measures. Hence, if any decided change in outline occurs under moderate doses, one has a reasonable assurance of a pre-existent dilatation; and to this is usually added a decided and confirmatory amelioration or disappearance of pre-existing subjective symptoms. The procedure is so simple and its results, according to the experience of the writer, so often direct and unmistakable as to leave us no justification for its neglect.

The time has passed when mere ability to differentiate valvular lesions or recognize gross cardiac insufficiencies could represent the discharge of diagnostic obligations; and the day is at hand when the cardiopath will justly demand at the hands of medical men a timely and rational therapy, which will secure to him increase of comfort and prolongation of life.

We have long imposed upon the extraordinary endurance of heart-muscle, have justified our therapeutic cowardice or scientific Fabianism by our abhorrence of meddlesome interference, and have allowed the extremely gradual progression of degenerative changes in a crippled myocardium and its extraordinary recuperative power to blind us to our obligation to give prompt relief to the laboring heart, wherever and whenever its distress signals are recognized.

#### DISCUSSION

DR. GEO. DOUGLAS HEAD, (Minneapolis): So many varied lines of discussion are suggested by Dr. Greene's most instructive paper that I can hope to emphasize only one or two points which my limited experience has taught me not to forget.

In the first place, few patients with myocardial or endocardial disease come to one labeled "heart disease." Those patients who think they have heart trouble frequently show no evidence of it, and many patients who complain of symptoms so remote from the heart itself that the examiner considers disease of almost every other organ in the body, often have organic heart lesions of one type or another.

In order to avoid errors in diagnosis, the clinician in every case must be most thorough and painstaking in his examination. The chest must be bare, the room must be quiet, the patient must be lying down, one must use his eyes as well as his ears. The evidence of cyanosis, pulsations in the neck, the apex beat and its location, general heaving, forcible beating of the heart itself, systolic retractions in the chest, etc.—all these can be noticed with the aid of vision. By touch one determines the presence of thrills at the base, or the apex; by auscultation with a good stethoscope, the presence or



absence of murmurs. I have made enough mistakes to convince myself that mild grades of mitral stenosis are often overlooked with the patients in a standing or sitting position. I also know that to determine some forms of aortic insufficiency with a soft prolonged diastolic murmur at the base, it is necessary to listen to the heart with a good stethoscope, in a quiet room, with the patient lying flat on his back.

Again and again sufferers with ill-defined pains in the chest, neck, and through the shoulders and arms, due to this lesion, pass from one practitioner to another with the diagnosis of intercostal neuralgia, pleurisy, muscular rheumatism, neuritis, fermentative indigestion, and even gall stones, only because the examining clinician has failed to put his patient on his back and listen carefully with the stethoscope over the base of the heart. The diagnosis of organic valvular lesions of the heart is easy, as a rule, provided the clinician takes the pains to develop a history sufficient to establish an etiological factor, and then make a careful and systematic examination of his patient.

With disease of the heart-muscle, whether toxic or infectious, the task grows more difficult, but here also our failure to properly comprehend the clinical condition results more often from our carelessness in making examinations than out of ignorance. In most of these cases, however, the signs of cardiac insufficiency, with which we are all familiar, dominate the picture. The systolic jugular pulsation, the arrhythmia, the small rapid pulse, enlargement of the area of cardiac dullness, usually to the right, the low blood-pressure, the presence of valvular murmurs, the slightly enlarged liver, can be interpreted only as indications of muscular insufficiency, and usually permit of but one conclusion.

It is the exceptional case where the problem becomes puzzling, where so many factors enter in to produce a composite picture, that one needs to call to his aid the sphygmograph, the polygraph, the electrocardiograph, the sphygmomanometer, the fluoroscopic examination of the heart area, etc. These instruments and methods are of very great value in studying the exceptional case. They were never intended to, nor can they, take the place of systematic, careful, clinical examination.

In my student days, courses in diseases of the heart consisted largely in a study of the organic valvular lesions. Infectious forms of carditis and toxic degenerations of the heart-muscle were scarcely spoken of, much less dwelt upon. Lues was not considered as a factor in the production of heart disease. The defect in the instruction in that day was due largely to a lack of knowledge of the causal factors, of the etiology. The study of the sources of infection in the tonsils, the antrum, and other cranial sinuses, the teeth, the prostate, the urethra, and other sources which I need not mention, has been a long step forward, and will enable us clearly to explain today clinical pictures which a decade ago baffled the clinician.

DR. GREENE (closing): I was in hopes there would be more general discussion on my paper, as I took it for granted there would be a great deal of criticism of the views which are more or less radical, although they have been stated and restated by me.

The thing I wish to impress especially upon my fellow practitioners is the fact that damaging dilatations of the heart, oftentimes wholly silent so far as symptoms are concerned, are being constantly overlooked to the detri-

ment of the patient and to the shortening of the patient's life. I propose to demonstrate that in a minute or two by showing some actual x-ray outlines reduced to paper, tracings from x-ray pictures, in order to illustrate the point I have in mind.

This first plate is not an actual tracing, but is taken from a German illustration which shows the so-called drop-heart, the heart to which I referred in my paper as being long, narrow and practically suspended from its attachment above. The drop-heart is peculiar in many ways: it beats like a sac, as one sees it with the fluoroscope; it is peculiarly dilatable; it will produce all sorts of bizarre symptoms, and it is common in so-called "neurasthenia," whatever that may be. Under rest, cardiac stimulation and improved nutrition, it is quite astonishing to see the change that takes place in the subjective symptoms and the cardiac outline. In this case the auricle is away up here (indicating); the whole heart is a stretched organ, peculiarly lacking in proper muscle-tone.

Here is a drop-heart taken from one of my own patients which shows how it may be suspended in the chest. The heart lies wholly above the diaphragm, so that there is nothing there except the ordinary diaphragmatic attachments. The heart is not in contact with the diaphragm at all. Notice again its peculiar shape. The outline of the heart, such as you have been taught to call normal, is an over-large one. It will measure 15 cm. ordinarily in the average chest. According to the observers who have been working the thing out accurately by means of the x-ray, such a heart hardly falls within the normal range at all. Twelve or 13 cm. is the ordinary distance to be allowed as representing a normal heart profile in a robust individual, but is far in excess of drop-heart measurements.

Here is one form of dilated drop-heart. The original measurement was 10.5 centimeters. Treatment reduced it to 8.6, a very small heart, which you must know ought to be expected, or you are sure to disregard its dilatation.

Here is another drop-heart of a different form: 12.5 was the original measurement; 9.5 was the actual normal measurement, which was away under the old normal figures.

Here is another that measures 12.9; here is still another that is different that measures 12.6; another reduced from 12 to 9, and another reduced from 12 to 8; still another one, rather different, reduced from 12 to 8.

Here is another which is shown chiefly on account of the peculiar outline, showing a tendency to dominant left heart change.

Here is an extremely interesting one. It looks like a dilated muscular sac. The original measurement was 14 cm.; the normal proved to be 10, a difference of 4 centimeters.

Here is a still more remarkable one, the original measurement being 16.4 cm., which was reduced to 10. Here is another one that measured 16.4 cm., normally proving to be 10, and here is yet another measuring originally 16 cm., and now reduced to 10.5 cm.

Those are actual cases, and I believe they really prove the point that time and again we have not only been overlooking a slight dilatation, but a very marked dilatation of the heart. How many of us stop to consider that there are a goodly number of individuals who come to us as patients whose normal cardiac profile measure-



ment is actually 7.5 or 8 centimeters. You often find hearts measuring 12 or 13 centimeters in delicate, slenderly built patients, perhaps, and naturally enough you consider them normal. They are oftentimes dilated hearts.

I would not confine myself to the drop-heart. I am dwelling upon that because I have demonstrable proof in support of my contention; but I find an enormous number of overlooked dilatations in hearts that are not drop-hearts, but are simply silent hearts, and the reason for that lies again in our imperfect system of percussion and of measurement of the heart. By the old flat-finger method of percussion you actually do not get the width of the heart, especially if it be at all dilated, but according to the degree of dilatation present,

and the shape of the chest of the individual, you will add to the proper figure anywhere from one up to five centimeters erroneously. You are actually percussing the side of the heart, and not getting its profile. On the other hand, if you percuss with a stiff, flexed finger or very carefully with a proper pleximeter, and especially if you use the modern x-ray control method, you will get what is actually the cardiac profile; and in our own experience I find our measurements taken in that way do not often differ from the long focus x-ray picture, by which we check it by more than a centimeter. Occasionally we find we have gone several centimeters off, but, ordinarily, percussion carried out in the modern way will check within less than a centimeter of the long-focus x-ray profile.

## REVISED PLAN OF THE AFFILIATION BETWEEN THE MAYO CLINIC AND THE MEDICAL SCHOOL OF THE UNIVERSITY OF MINNESOTA FOR GRADUATE MEDICAL WORK

A special committee of the Board of Regents of the University of Minnesota recently presented its report, and a hearing upon such report was given by the Regents on June 5th.

The report consists of three parts, the first of which deals with the reasons upon which the recommendations are based; the second part is an abstract of the agreement to be entered into between the Mayo Clinic and the University; and the third part is the full text of the proposed legal instrument.

THE JOURNAL-LANCET prints herewith the second and third parts:

### ABSTRACT OF FORMAL AGREEMENT

1. The agreement is made between William J. Mayo and Charles H. Mayo as Founders; the Mayo Foundation; Burt W. Eaton, George W. Granger, and Harry J. Harwick, Trustees of the \$1,500,000; and the University. It sets forth copies of the articles of the Foundation and of the two trust agreements and asserts or provides:

2. That the Mayos and their associates have entered into an agreement with the Foundation for the period of six years after September 1, 1915, to pay all moneys and provide all subjects, facilities and material necessary to enable the Foundation to carry out its agreement with the University.

3. That the Board of Regents is by law required to manage the University and appoint its professors and employees and fix their salaries and may accept in trust gifts and bequests upon the terms and conditions on which they are granted.

4. That the University is maintaining a medical school and is carrying on graduate medical and surgical instruction and has determined to increase its faculty, secure additional facilities, sites and material, appoint additional professors and assistants and carry on part of the work of the school of medicine at Rochester.

5. That the Foundation gives and grants to the University free of charge the right to use for medical and surgical education and research, space and rooms and equipment in a certain building in Rochester, together with all clinical and other materials and opportunities for graduate medical and surgical work available at the Mayo Clinic, St. Mary's Hospital, the Kahler Sanatorium and the Colonial Sanatorium in Rochester, for a period of six years after September 1, 1915.

6. That the Foundation also agrees during that period to pay all salaries fixed by the Board of Regents and payable to professors, assistant professors and instructors appointed by the Board.

7. That until September 1, 1921, the net income of each of the trust funds shall remain in the hands of the Trustees as an added increment to the principal of the funds.

8. That from and after September 1, 1921, the principal of the funds and all accumulations to that date shall be turned over to and become the property of the University.

9. That the funds and the income therefrom are granted in trust to be used by the University as follows:

(a) The principal shall always be kept intact by the Board of Regents and be invested in suitable securities;

(b) The income from the funds shall be used for the purpose of graduate medical and surgical instruction and research carried on under the direction of the Board of Regents, at Rochester, Minn., with the understanding that appropriations may be made for carrying on medical investigations anywhere within or outside the State of Minnesota.

10. That the agreement may be terminated at any time on or before September 1, 1921, upon one year's notice given by either of the parties to the other, subject to the co-operation of all parties to discharge to the satisfaction of the University outstanding obligations to graduate students.

11. That the University accepts the gifts and grants, and obligates itself annually to furnish to the Foundation until September 1, 1921, a budget stating the needs of this branch of the work at Rochester.

## PROPOSED LEGAL INSTRUMENT

THIS AGREEMENT made and entered into this .....day of ..... by and between William J. Mayo and Charles H. Mayo, hereinafter called the "Founders," the MAYO FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH, INCORPORATED, hereinafter called "Foundation," Burt W. Eaton, George W. Granger, and Harry J. Harwick, hereinafter called "Trustees," and the UNIVERSITY OF MINNESOTA, hereinafter called the "University." WITNESSETH:

## I

The Foundation is a corporation organized under Chapter 58, General Statutes of Minnesota, 1913, a copy of its certificate is hereto attached and marked "Exhibit One."

The Founders made and entered into a certain trust agreement in writing dated February 9, 1915, with the Trustees therein named, a copy of which is hereto attached and marked "Exhibit Two"; and also made and entered into a certain other trust agreement in writing dated February 9, 1915, with the trustees therein named, a copy of which is hereto attached and marked "Exhibit Three."

The Founders in order to carry into effect their purposes as the Founders of the trust created by said agreement, a copy of which is "Exhibit Two" hereto attached, delivered to said trustees therein named, interest bearing securities of the face value of one million dollars, a schedule of which is attached to said agreement, and in order to carry into effect their purposes as founders of the trust created by said agreement, a copy of which is "Exhibit Three" hereto attached, delivered to said trustees therein named interest bearing securities of the face value of five hundred thousand dollars, a schedule of which is thereto attached.

## II

William J. Mayo, Charles H. Mayo, Christopher Graham, Henry S. Plummer, Edward Starr Judd, and Donald C. Balfour for some years last past have been and now are engaged in promoting, directing, supervising, and conducting graduate medical surgical instruction and research at Rochester, Minnesota, and they have agreed with the Foundation for and during a period of six years from and after September 1, 1915, regularly to furnish and pay over to the Foundation from time to time and as called for all the money, and during the said period of six years to furnish and cause to be provided all the office space, rooms, furniture, facilities, supplies and clinical and other material which may be required by said Foundation to enable it to make the gifts and grants and to perform its agreements with the University herein contained.

## III

The Board of Regents of the University of Minnesota is vested by law with the "government and general educational management of the State University" and is required by law to elect "proper professors, teachers, officers and employees, and fix their salaries and terms of office, determine the moral and educational qualifications of applicants for admission, prescribe text-books, and authorities and courses of study, and in their discretion confer such degrees and diplomas as are usual in universities," and is authorized by law "to accept, in trust or otherwise, any gift, grant, bequest, or devise

for educational purposes, and may hold, manage, invest and dispose of the same, and the proceeds and income thereof in accordance with the terms and conditions of such gift, grant, bequest or devise, and of the acceptance thereof."

## IV

The University of Minnesota for some years last past has been and is now conducting and maintaining a Medical School in and as a part of the University, and in connection therewith has been and is giving and carrying on graduate medical and surgical instruction and research, and the said University has determined to add to the faculty of its graduate medical school and secure for such school the use and benefit of additional facilities, supplies, clinical and other material for such graduate and research work, and, in furtherance of its purposes, is about to appoint additional professors, associate professors, assistant professors, and instructors, who shall, under the control and direction of the Board of Regents, carry on at Rochester, Minnesota, and in connection with its graduate medical school, a part of its graduate medical and surgical instruction and research. The additional professors, associate professors, assistant professors, and instructors so to be appointed shall be known as "Mayo Foundation" professors, associate professors, assistant professors, and instructors, respectively.

## V

The Foundation, to aid and promote graduate medical and surgical instruction and research which is to be carried on by the University, does hereby give and grant to the University free of charge the right and privilege to use for medical and surgical education and research all of the space, rooms, offices, furniture, etc., upon the third, fourth, and fifth floors of that certain building situated at the southeast corner of Fourth Street and Franklin Street in Rochester, Minnesota, or in such other suitable building as said Foundation may furnish, together with the right to use free of charge all facilities, instruments, apparatus, materials, and supplies of every kind and description required by the University for use in connection with that portion of its graduate medical and surgical instruction and research which shall be carried on at Rochester, Minnesota.

The Foundation hereby undertakes and agrees that it will furnish and provide to the University free of charge all clinical and other materials and opportunities for graduate medical and surgical teaching and research which are or may become available for such uses and purposes at the Mayo Clinic, St. Mary's Hospital, the Kahler Sanatorium, The Colonial Sanatorium or at any other similar institution hereafter controlled by the Foundation, at Rochester, Minnesota, and that during a period of six years from and after September 1, 1915, it will regularly and promptly pay all professors, associate professors, assistant professors, and instructors, known as the Mayo Foundation professors, associate professors, assistant professors, and instructors respectively, who may be appointed as such by the Board of Regents of the University, the salaries or compensations which may be fixed by the Board. The Foundation further agrees that it will regularly and promptly pay the wages, salaries and compensation which may be fixed by the Board of all non-professional employees who may be hired by the Board or under its authority to render services in and about the above mentioned work of the University at Rochester, Minnesota.

VI

The Founders, Trustees, and Foundation hereby agree that during the period of six years from and after September 1, 1915, unless this agreement shall be earlier terminated as hereinafter provided, the net income of each of the trust funds above mentioned shall remain in the hands of said Trustees and shall be added to and become a part of the principal fund which produced the same.

VII

The Founders, Trustees, and Foundation hereby agree that if this agreement shall not be terminated on or prior to September 1, 1921, all of the principal of each of said funds, including all accumulations and additions thereto, together with all moneys, securities, property, choses in action and evidences of debt of every kind and description constituting the same shall be by said Founders, Trustees, and Foundation given, granted, assigned, transferred, set over and delivered unto the University to be by it accepted upon the trust and kept and used according to the terms and conditions hereinafter specified.

VIII

It is agreed by all the parties hereto that the funds moneys, securities, property, choses in action, evidence of debt rights and privileges so to be delivered to the University shall be given and granted in trust for purposes and upon and subject to terms and conditions as follows, that is to say:

(a) The principal of each of said trust funds shall be invested and reinvested by the Board of Regents in first-class municipal, county, state and federal securities, provided, however, that by a unanimous vote of all of the Regents present at any regular meeting such funds may be authorized to be invested in other safe and conservative securities.

(b) The net income arising from the investment of said funds shall be used for the purpose of graduate medical and surgical instruction and research carried on under the direction of the University, and the University may in the discretion of the Board of Regents use such income or any portion thereof from time to time for the erection or rental and equipment of a building or buildings at Rochester, Minnesota, necessary to carry on such work, but the entire principal of the funds so received by the University shall forever be held by it as an endowment, in order that the net income therefrom may be perpetually used for the purposes aforesaid.

(c) The place for carrying on the graduate medical instruction and research work with the endowment income shall be Rochester, Minnesota. This condition is not to be construed to mean that all of the net income of the endowment fund shall be spent in the City of Rochester. Whilst the work will be there maintained, and its medical and scientific work will be conducted and directed by the Board of Regents from Rochester, appropriations from the income of the endowment fund may be used for the promotion of medical research anywhere within or outside the State of Minnesota for any work of medical investigation.

IX

It is agreed by all the parties hereto that the trust agreements, copies of which are "Exhibits Two and Three" hereto attached, are by this agreement so altered,

amended and modified as to enable the parties hereto to carry out the provisions hereof according to the purpose, true intent and meaning of the same, but that in all other respects each of said agreements shall be and remain in full force and effect.

X

It is agreed by all the parties hereto that this agreement may be terminated on or prior to September 1, 1921, upon at least one year's notice in writing given by the University to the other parties or by the Founders or the Foundation to the University of intention to terminate the same and that, upon the termination hereof the Founders, Trustees, and Foundation will co-operate with the University to carry out and fully discharge to the satisfaction of the University the then existing obligation to the graduate students of the University then pursuing such work.

XI

The Trustees make and enter into this agreement in their capacity as trustees under the above mentioned trust agreements and not otherwise.

XII

The University hereby accepts the gifts and grants hereinbefore specified and all the benefits and advantages to arise from the performance of the agreements herein contained which are to be kept and performed by the Founders, Trustees, and Foundation.

The University will, prior to July 31 of each year during a period of six years from and after September 1, 1915, make and deliver to said Foundation an annual budget stating as nearly as may be the amount of money which will be required during the ensuing year for the purposes aforesaid including a statement in such detail as is reasonably practicable showing the purposes for which such money is to be expended.

XIII

The obligations of this agreement shall extend to and be binding upon the executors and administrators of each of the Founders and shall extend to and be binding upon the successors of each of said Trustees and of said Foundation.

IN WITNESS WHEREOF, The Trustees and Founders have executed this instrument in triplicate and the Foundation and the University have caused the same so to be executed by their duly authorized officers on the day and year first above written.

.....(Seal)  
.....(Seal)  
.....(Seal)  
Founders.

MAYO FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH, INCORPORATED.

By.....  
President.  
.....  
Secretary.  
.....(Seal)  
.....(Seal)  
.....(Seal)  
Trustees.

UNIVERSITY OF MINNESOTA.

By.....  
President of the Board of Regents.  
.....  
Secretary.



# THE JOURNAL-LANCET

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## ANNUAL BANQUET OF THE HENNEPIN COUNTY MEDICAL SOCIETY

The regular meeting of the Hennepin County Medical Society was celebrated by a banquet which took place in the ball-room of the Radisson Hotel on the evening of June 7, 1915. The attendance was unusually large, some two hundred doctors from Minneapolis and St. Paul and outlying cities being present.

The meeting was made more interesting by the appearance of Dr. Fred Cotton, a prominent surgeon of Boston, who described a new method of treating infected joints. He is an exceedingly pleasing speaker; and the descriptions of his operations and his methods were clear and concise, so that any one who was interested in the subject would be able to follow his instructions. Dr. Cotton believes that under the previous methods of draining joints there has usually resulted a permanent ankylosis. Under the new method the joints, such as the knee or elbow, can be drained, washed, and closed after the joint has been washed out with a solution of corrosive sublimate, 1,000 to 15,000 solution. After this has been applied, the joint is washed with a salt solution. The joint is then closed up tight, but the external dressing is made more loosely, which per-

mits a little drainage from the surface. The results have been so satisfactory that a practically complete restoration and normal function of the joint is the outcome. This operation is applicable to all kinds of affected joints, whether the infection is from within or from without.

Dr. Wayne Babcock, of Philadelphia, gave a talk on the Wassermann reaction, and also upon surgical operations about the hip-joint, illustrating Dr. Murphy's methods as performed by himself.

After his introductory remarks on the Wassermann reaction, the moving-picture man showed on the screen the technic and the details of the Wassermann reaction,—how the animals were prepared, anesthetized, injected, and how the blood was drawn from the animal for laboratory purposes, and, finally, how the infected blood from the man was drawn from the vein. Then the various stages through which the tubes were passed, were illustrated by picture films.

His illustration of a hip operation done under a spinal anesthesia, was interesting, and showed, or at least attempted to show, how many unnecessary moves were made by the surgeon, and how he might conserve his muscles, and save many surgical steps.

The film method of illustrating a subject is bound to occupy a prominent place in teaching and in illustrating; but it is questionable whether any student or surgeon in seeing a film operation could do likewise in his private practice. In the first place the pictures are rapidly reproduced, and the surgical steps in a picture film are often obscured by a blood or fat field of work. As a matter of common knowledge these gross operations should not be attempted by any one except those schooled in the art. The moving-picture display might help the experienced surgeon, but would hardly help the beginner.

Dr. Babcock called attention, also, to the disadvantages of the film-picture show, first, that it is rather expensive, and does not secure the proper tone colors, and it is impossible to sufficiently eliminate the deep cavities.

Dr. Babcock is an exceedingly pleasing speaker; and he made a very good impression upon the Hennepin County Medical Society.

After an evening of this sort we often wonder what the man from the East thinks of the man from the West. We sometimes feel that the men from the East think they are coming into an unknown territory, and deem it necessary to instruct men of the West in elementary medi-

cine. We suppose many men have a hazy idea of the Wassermann reaction; and, of course, a few have expert ideas of it, and probably the illustration which was given, will be instructive to the majority of men who were present. But that, like other things, is in the hands of the specialist, as few men are equipped with animals and laboratories to conduct a Wassermann reaction.

Dr. H. H. Kimball, one of the oldest members of the Hennepin County Medical Society, presented them with a complete stereopticon outfit with valuable slides. His gift was a very handsome one, and was received with great applause. Dr. Kimball frequently does things of this sort for the Hennepin County Society. He feels that he is unable to serve in other capacities, as do the younger men, and this is his way of expressing his love for the Society.

A set of resolutions, touching on the Mayo affiliation problem, was introduced and passed by an almost unanimous vote.

#### CARRIERS OF TYPHOID BACILLI

Minnesota, as well as other states, has occasionally been afflicted with typhoid-carriers. Recently, one has come to the attention of the State Board of Health. The typhoid was contracted somewhere. The man returned to his home, and was discovered to be a carrier. He was promptly sent away, and, eventually, after some wandering, found himself in the executive office of the State Board of Health at St. Paul. He was taken in hand by Dr. H. M. Bracken, who advanced him money for his immediate needs. Then he was taken to the Governor's office, the situation explained, and Governor Hammond very promptly and properly assured Dr. Bracken that the contingent fund at his disposal would pay for the man's necessary expenses until suitable quarters could be provided.

Doubtless, there are a number of these carriers about; and the small sum of \$500 was secured at the last legislature for the purpose of protecting them.

In connection with this carrier proposition, there is in the *Berliner klinische Wochenschrift*, for April 5th, an article by A. Geronne and W. Lenz, on thymol plus charcoal in the treatment of typhoid-bacilli carriers. Mr. Geronne rapidly

destroyed by this form of treatment the typhoid bacilli from the stools of three men who were developing into chronic carriers. Thymol was selected as an efficient disinfectant, and given in combination with charcoal, with the idea that it would absorb the thymol, and thus retard its absorption by the tissues, and permit it to act over a much longer stretch of the bowel and for a longer period. These theories were all confirmed. The thymol was absorbed much more gradually and slowly as could be seen by the urine. The animal charcoal is given in 1 gm. doses, one-half hour before each meal, and two 0.5 gm. of thymol capsules, one-half hour after each meal. This treatment is kept up from eight to fourteen days without any appreciable by-effects. Either one of these drugs could not alone show a marked reduction of the flora in the stools; but, when given together, the reduction is much greater.

Mr. Geronne is also testing this as a vehicle with narcotics and other drugs; and he is convinced that it has a future. If this treatment is continuously successful it would be a small matter to rid the country of typhoid-carriers, and it might not be a bad plan to treat every typhoid-fever patient with thymol and charcoal, in order to disinfect the bowel, and prevent the patient from becoming a carrier. The average patient, who has typhoid fever, gets but little treatment other than the care given by the nurse and a diet properly selected, so that the introduction of a disinfectant of this kind could not possibly do any harm.

#### THE AFFILIATION BETWEEN THE MAYO CLINIC AND THE UNIVERSITY, AND THE CONSEQUENT RESIGNATION OF DR. CHARLES LYMAN GREENE

As this issue of THE JOURNAL-LANCET goes to press, the Regents of the University of Minnesota announce the acceptance, by a unanimous vote, of the revised plan of affiliation between the University Medical School and the Mayo Clinic for graduate medical work; and with this announcement comes that of the resignation, and its acceptance, of Dr. Charles Lyman Greene from the medical staff of the University.

## CORRESPONDENCE

### THE SERVICES OF THE NORTH DAKOTA PUBLIC HEALTH LABORATORIES OFFERED MINNESOTA PHYSICIANS

TO THE EDITOR:

Realizing the serious condition of public-health affairs in the State of Minnesota, due to the closing of the State Public Health Laboratories from May until August, the Director of the North Dakota Laboratories desires, through the columns of THE JOURNAL-LANCET, to offer the use of the North Dakota State Public Health Laboratories (so far as it does not interfere with the North Dakota work) to the physicians of Minnesota for the examination of cultures for diphtheria, sputum for tuberculosis, and blood for typhoid (Widal).

For each examination and diagnosis a fee of two dollars will be charged. An additional fee of one dollar will be charged in each case where specimens are to be sent on media and in containers supplied by the North Dakota Laboratories.

All specimens should be sent to the North Dakota State Public Health Laboratories, University, North Dakota, and should be accompanied by a full history of the case, and the specified fee.

LEVERETT DALE BRISTOL, M. D.,  
Director of the State Public  
Health Laboratories,  
University of North Dakota

## NEWS ITEMS

Dr. G. D. Murphy, of Murdock, has moved to Montana.

Dr. S. W. Melzer has moved from Kensington, Minn., to Jamestown, N. D.

Dr. J. Bursma has given up practice at Fessenden, and will probably locate in Michigan.

Dr. E. W. McEssy has taken over the practice of Dr. N. O. Sandven, of Park River, N. D.

Dr. Jacob Biedermann, who has been practicing at Argyle for the past ten years, has moved to Thief River Falls.

Drs. Bigelow, Sharpe & Carter, of Brandon,

Manitoba, have formed a partnership, and established special clinics.

Bids have been received by the Minnesota State Board of Control for building the tuberculosis sanatorium at Crookston.

St. John's Hospital of Fargo, N. D., proposes to build a \$50,000 nurses' home. It will contain some rooms for hospital purposes.

Dr. E. D. Quinnell, who has been associated for some time with Drs. Bolsta & Karn, of Ortonville, has moved to Sisseton, S. D.

Dr. M. C. Johnson, of Aberdeen, S. D., has resigned from the County Board of Health because its duties were too time-consuming.

Blue Earth County has rejected the plan for building a joint county tuberculosis sanatorium at Mankato. Eight counties were to join in the plan.

Dr. John Lyng, of Fergus Falls, has gone to Europe, and will spend some months in the Christiania, Stockholm, and Copenhagen hospitals.

A county hospital is to be built at Hazen, N. D. The citizens of Hazen will furnish the building and equipment, and the County will furnish and maintain it.

Plans for a twenty-five bed hospital are being drawn for Kenmare N. D. W. J. Edwards, of that place, is the architect. The building will cost \$10,000.

The U. S. Public Health Service will soon begin a health survey of some county, not yet designated, in Minnesota. The survey will be of great interest and value.

The Union Hospital, built by the Protestant Churches of New Ulm, was dedicated last week. It cost \$70,000. New Ulm has another large hospital, the Loretto Hospital.

Dr. J. H. Crewe, health officer of the city of Virginia, reports that all but six of the births in the city since January 1, have been registered. This is a creditable showing where indifference to vital statistics has prevailed.

Dr. L. C. Meade last month completed his twenty-fifth year as superintendent of the South Dakota Hospital for Insane at Yankton. A bouquet of twenty-five American Beauty roses, with a bouquet of a few appreciative words, was sent Dr. Meade by friends.

The City and County Hospital of St. Paul graduated twenty-six nurses, and the City Hospital of Minneapolis graduated nineteen last



month. All the larger hospitals of the Northwest maintain training-schools, and yet they cannot meet the demands for nurses.

Dr. I. J. Murphy, formerly assistant health director of Duluth, succeeds Dr. H. W. Hill, executive agent of the Minnesota Public Health Association. No better choice could have been made to fill this important office, which demands great executive and initiative ability.

The surgeons of the Minnesota Division of the Northwestern Railway met in Mankato last month. Among the speakers were: Dr. C. W. Hopkins, of Chicago; Dr. D. S. Fairchild, of Clinton, Iowa; and Dr. C. H. Mayo, of Rochester. Dr. A. E. Sohmer, of Mankato, presided. The conservation of human life was the object of the meeting. The railroads of America are attempting, with the aid of physicians and surgeons, to reduce the inevitable death-toll of railway operation.

The statue erected by the citizens of Rochester, Minn., in honor of the late Dr. William W. Mayo, was unveiled on May 29th. Addresses were made by Judge Charles M. Start, formerly chief justice of the Minnesota Supreme Court, and Bishop Thomas O'Gorman, of South Dakota, formerly of Rochester. The statue was designed by Leonard Curnelle, of Chicago. The figure is eight feet in height, and carved in granite from Barre, Vt. The statue stands in Mayo Park, a gift to the city of Rochester from Drs. W. J. and C. H. Mayo.

The Hennepin County Medical Society held its annual banquet last week, with Dr. Frederick Cotton, of Boston, and Dr. Wayne Babcock, of Philadelphia, and the guests and special speakers of the occasion. Their addresses are discussed in an editorial in this issue. Dr. H. H. Kimball presented the Society a complete stereopticon outfit, with some valuable slides. This outfit will be very helpful to the members in the presentation of papers requiring illustrations. A resolution against the Mayo affiliation plan was introduced and passed. It protested against calling the proposed contract a "gift," and also against Dr. Mayo's remaining on the Board of Regents while a party to the contract with his firm.

#### OFFICE HOURS FOR SALE.

Wanted.—A physician to share morning and afternoon hours with me in my office in the Andrus Building, Minneapolis. Address No. 227, care of this office.

#### ASSOCIATE WANTED.

To share fully equipped office in a prominent office building in Minneapolis. Prefer a young man. Can give very cheap rent to right man. Address No. 228, care of this office.

#### X-RAY COIL FOR SALE

Victor No. 1 Portable Coil for either 220- or 110-volt current, practically new, with tube, fluoroscope and screen. Will sacrifice at \$140.00 for cash. Address 229, care of this office.

#### OFFICE FOR RENT

I will rent for one year my fully furnished office, with half interest in reception-room, in the Lowry Bldg., St. Paul, to a responsible physician. Am to be out of the city, so will rent at bare cost. Address 222, care of this office.

#### PRACTICE FOR SALE

One of the best locations in South Dakota. Growing city of two thousand population; one other physician; railroad division point; new, strictly modern, ten-room house in good location. Practice goes with sale of property; one-third cash will handle deal. No blue sky about this. It is a first-class opportunity. I have other interests, and want to sell. Address 226, care of this office.

#### EQUIPMENT FOR SALE

The following at your own price: Sinusoidal and Galvanic plate, Kellogg's, cost \$120; electric light bath cabinet, Kellogg's upright, sells for \$350; Oxyoline machine, Neal Armstrong, four-patient, cost \$550, used three months; portable high frequency outfit and massage tables. Will consider any reasonable offer for all or any part of above. These are all practically new. Am specializing in other work and have no use for these things. Address 221, care of this office.

#### PRACTICE FOR SALE

Northwestern Minnesota. Unopposed \$5,000 village and country practice; collections 95 per cent; nearest competition, 8, 14, 20, and 26 miles. Railroad surgeon; handle my surgical cases successfully with ethical associate in nearby town. Price \$900; includes office equipment, two driving teams, harness, buggy, cutter. A 1914 Maxwell optional at \$600. Terms two-thirds cash. Prescription supplies purchasable at invoice on easy payments from unregistered owner. Reasons for selling: Have made good and am going to larger surgical field. A real opportunity for a good man. None other need apply. Address 225, care of this office.

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	1															2
Albert Lea	4,500	6,192	7															
Alexandria	2,581	3,001	3			1												
Anoka	3,769	3,972	7	1														
Austin	5,474	6,960	5			1											1	
Barnesville	1,326	1,353	3															
Bemidji	2,183	5,099	6	1		2								1		2		
Benson	1,525	1,677	5			1												
Blue Earth	2,900	2,319	3															
Brainerd	7,524	8,526	9	1		1									1	1		
Breckenridge	1,282	1,840	6			1												
Canby	1,100	1,528	2															
Cannon Falls	1,239	1,385	1															
Chaska	2,165	2,050	2															
Chatfield	1,426	1,226	1															
Cloquet	3,074	7,031	3															
Crookston	5,359	7,559	7	1											1	1		1
Dawson	962	1,318	3													1		
Detroit	2,060	2,807	4															
Duluth	52,968	78,466	74	10	3	19					1				2	5		1
East Grand Forks	2,077	2,533	3													1		
Ely	3,572	3,572	7	1											1	1		
Eveleth	2,752	7,036	2	1											1			
Fairmont	3,440	2,958	7													1	1	
Fairbault	7,868	9,001	11	1		2										1		
Fergus Falls	6,072	6,887	8			1												1
Glencoe	1,788	1,788	3															
Glenwood	1,116	2,161	1															
Granite Falls	1,454	1,454	1															
Hastings	3,811	3,983	6			1										1		
Hutchinson	2,495	2,368	1															
International Falls		1,487	6													1	1	
Jordan	1,270	1,151	1															
Lake City	3,142	3,142	2			1												
Le Sueur	1,937	1,755	4													1		
Little Falls	5,774	6,078	5												1	1		1
Luverne	2,223	2,540	2															
Madison	1,336	1,811	0															
Mankato	10,559	10,365	20	4	1	3										1		
Marshall	2,088	2,152	3													1		
Melrose	2,591	2,591	1															
Minneapolis	202,718	301,408	337	45	10	37	7	1					1	5	8	22	2	17
Montevideo	2,146	3,056	4						1									1
Montgomery	979	1,267	*															
Moorhead	3,730	4,840	6		1											1		
Morris	1,934	1,685	2															
New Prague	1,228	1,554	1			1												
New Ulm	5,403	5,643	9	1	1													
Northfield	3,210	3,215	6			2		1										
Ortonville	1,247	1,774	2												1			1
Owatonna	5,561	5,658	8				1		1							1		1
Pipestone	2,536	2,475	2															
Red Lake Falls	1,666	1,666	3											2				
Red Wing	7,525	9,048	10			1										2		
Redwood Falls	1,661	1,666	3															
Renville	1,075	1,182	1															
Rochester	6,843	7,844	39		2	2								1	1	5		1
Rushford	1,100	1,011	0															
St. Charles	1,304	1,159	2															
St. Cloud	8,663	10,600	15	2	1											3		1
St. James	2,102	2,102	2															
St. Paul	163,632	214,744	256	29	9	37	6	8	1		2				6	19	1	11
St. Peter	4,302	4,176	8			3												2
Sauk Centre	2,154	2,154	3															
Shakopee	2,046	2,302	4			1			1						1			
Sleepy Eye	2,046	2,247	1			1												
South St. Paul	2,322	4,510	5			1										1		
Staples	1,504	2,558	1															
Stillwater	12,318	10,198	4	2										1				
Thief River Falls	1,819	3,174	10	1	1										1	3		1
Tower	1,111	1,111	1															
Tracy	1,911	1,826	2															
Two Harbors	3,278	4,990	3															
Virginia	2,962	10,473	20			1	7				1							2
Wabasha	2,622	2,622	7	1		1												1
Warren	1,276	1,613	1	1		1												
Waseca	3,103	3,054	2													1		
Waterville	1,260	1,273	1															
West St. Paul	1,830	2,660	2	1														
Willmar	3,409	4,135	8	1														1
Winona	19,714	18,583	32	2	1	4								1	1	5	1	1
Winthrop	813	1,043	2															
Worthington	2,386	2,385	5	2														

## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian .....	1,258	1,112	2			1												
Aitkin .....	1,719	1,633	4	1													1	
Akeley .....			0															
Appleton .....	1,184	1,221	1															
Belle Plaine .....	1,121	1,204	0															
Blwabik .....		1,690	*															
Bovey .....		1,377	0															
Browns Valley .....	721	1,058	0															
Buffalo .....	1,040	1,227	1		1													
Caledonia .....	1,175	1,372	4															
Cass Lake .....	546	2,011	2															1
Chisholm .....		7,684	9	1		3									3			
Coleraine .....		1,613	0															
Delano .....	967	1,031	2															
Farmington .....	733	1,024	1			1												
Fosston .....	864	1,055	2															
Frazee .....	1,000	1,645	1															
Grand Rapids .....	1,428	2,239	3															
Hibbing .....	2,481	8,832	15	2		3					1							1
Jackson .....	1,756	1,907	3			1												
Janesville .....	1,254	1,173	3															
Kenyon .....	1,202	1,237	1															
Lake Crystal .....	1,215	1,038	2			2												
Litchfield .....	2,280	2,333	2														1	
Long Prairie .....	1,385	1,250	4			1												
Madelia .....	1,272	1,273	0															
Milaca .....	1,204	1,102	0															
Mountain Lake .....	959	1,081	1		1													
Nashwauk .....		2,080	1			1												
North Mankato .....	939	1,279	0															
North St. Paul .....	1,110	1,404	3	1														
Osakis .....	917	1,013	1															
Park Rapids .....	1,313	1,850	1															
Pelican Rapids .....	1,033	1,019	1													1		
Perham .....	1,182	1,376	0															
Pine City .....	993	1,258	0															
Plainview .....	1,038	1,175	3	1													1	
Preston .....	1,278	1,193	0															
Princeton .....	1,319	1,555	2															
St. Louis Park .....	1,325	1,743	2															
Sandstone .....	1,189	1,818	0															
Sauk Rapids .....	1,391	1,745	1															
South Stillwater .....	1,422	1,343	1															
Springfield .....	1,511	1,482	2															
Spring Valley .....	1,770	1,817	2			1												
Wadena .....	1,520	1,820	5														1	
Wells .....	2,017	1,755	1															
West Minneapolis .....	2,250	3,022	1															
Wheaton .....	1,132	1,300	0															
White Bear Lake .....	1,288	1,505	1															
Windom .....	1,944	1,749	*															
Winnebago City .....	1,816	2,555	0															
Zumbrota .....	1,119	1,138	0															
STATE INSTITUTIONS																		
Anoka, Asylum .....			1															
Faribault, School for Blind .....			0															
Faribault, School for Deaf .....			0															
Faribault, School for Feeble Minded .....			10			1												
Fergus Falls, Hospital for Insane .....			16	4														
Hastings, Asylum .....			1															
Minneapolis, Soldiers' Home .....			9														1	
Owatonna, School for Dependents .....			0															
Red Wing, State Training School .....			0															
Rochester, Hospital for Insane .....			6															
Sauk Centre, Home School for Girls .....			0															
St. Peter Hospital for Insane .....			15	3		1												
St. Cloud, State Reformatory .....			0															
Stillwater, State Prison .....			0															
OTHER PARTS OF STATE			932	54	17	158	5	8	6		8	2	1	3	31	59	4	25
Total for state .....			2158	176	50	307	19	18	10	0	13	2	2	14	62	146	11	75

\*No report received. Registrar not doing his duty.  
138 stillbirths not included in above totals.



## PUBLISHER'S DEPARTMENT

### EASY TO ORDER PHYSICIANS' SUPPLIES.

Messrs. Noyes Bros. & Cutler, of St. Paul, have installed free telephone service on the Tri-State line for their patrons in Minneapolis who want anything in the line of physicians' and surgeons' supplies.

The Physicians' Department of this well-known house is now so complete that a physician or surgeon can scarcely have a need that the department cannot fill on a moment's notice, and "deliver the goods" by their motor-truck service in Minneapolis or by mail or express in the country without a moment's delay.

### OUT OF DOORS IN UPPER WISCONSIN.

The Northwestern Line has issued its annual outing folder; and no other road from the Twin Cities can offer so many delightful outing places. The lakes and streams of Wisconsin furnish trout, bass, and muskellunge fishing to an extent quite unknown in any other northwestern territory; and the scenery at the many resorts is not equalled this side of the Rocky Mountains.

For copies of the folder, address any passenger agent of the Chicago & Northwestern Line, or write direct to G. H. MacRae, General Passenger Agent, St. Paul.

### THE WILLIAM PAINTER CO.

The William Painter Co., 621 Marquette Ave., Minneapolis, seek the patronage of physicians, surgeons, and hospitals with the assurance to such patrons that the Company will spare no pains to meet any possible want such patrons may have, and meet such wants in a manner to gratify all patrons. The members of the company seek to co-operate with any customer in obtaining for him just what he needs, instead of trying to induce him to buy what may prove a disappointment.

The Company carries an extensive line of supplies, and will give their best efforts to fill the smallest or the largest order.

They will furnish the fullest obtainable information to anyone seeking information upon the problem of supplies that confronts the physician or surgeon who has a small office or a large hospital to equip; and such service will be cheerfully given whether or not a purchase is made from the Company.

### THE METROPOLITAN MILK COMPANY.

Modern methods of distribution have grown out of necessity; and wise men recognize this fact when they deal with conditions that result from the first efforts to work under changed conditions.

The medical men of a city are the only men who see the actual results of a change in the distribution of milk,—a change from the neighborhood cow to the extensive plant that handles the milk of many thousand cows. Such a change has taken place in the Twin Cities almost entirely within ten or twelve years; and the Metropolitan Milk Company is the largest concern that handles the milk supply under the new conditions. We cannot say that its work is perfect, but we gladly com-

mend the disposition it has shown to co-operate with physicians to make the milk distribution meet the needs of the public, and especially of the infant and the sick. The total absence of any spirit of opposition on the part of this Company to measures suggested by medical men making for efficiency in the milk distribution, has often been noted by physicians; and we heartily commend this spirit of co-operation on the part of both physicians and the Metropolitan Milk Company.

### AUTO-INTOXICATION

Sir Andrew Clark called attention to and laid great stress upon auto-intoxication, as an important, but frequently unsuspected, cause of disease. At the present time the important role it plays is more generally recognized. Successful treatment involves not merely a single flushing of the alimentary tract, but an elimination of toxins already absorbed. Goutiness, also the common hepatic and biliary disorders, are in most cases merely the cumulative effects of intestinal auto-intoxication.

Pluto Water, well diluted in hot water, acts almost as a true specific in such conditions. It is also admirable in the treatment of uric acid diathesis, and other therapeutically troublesome stages of chronic rheumatism. Samples, clinical data analysis, and literature descriptive of the hygienic methods employed in bottling Pluto, will be promptly forwarded on application to The French Lick Springs Hotel Company, French Lick, Indiana.

### ABDOMINAL SUPPORT IN TREATING INTES- TINAL STASIS.

The importance of proper abdominal support in the treatment of intestinal stasis has been emphasized by Sir Wm. Arbuthnot Lane. Many and various are the belts and supporters that have been recommended, but for actual serviceability there is nothing that gives such satisfaction as the Storm Abdominal Binder. In order to accomplish its full benefits an abdominal belt must furnish real support without constriction. The Storm Binder meets these requirements in every way, and is so comfortable that it can be worn constantly by the most fleshy and obese patients. It certainly solves the problem of abdominal support and without the discomfort that has made so many other appliances for the purpose impractical and valueless.—*American Medicine*, April, 1915.

### TREATMENT OF PERSISTENT INACCESSIBLE HEMORRHAGE

Every physician feels the need occasionally of a reliable agent in persistent hemorrhage that is inaccessible to the ordinary modes of treatment. Coagulose meets that want—meets it better, it is believed, than any agent hitherto employed for the control of hemorrhage due to defective coagulation of the blood. Coagulose is prepared in the biological laboratories of Parke, Davis & Co., from normal horse serum. It is administered hypodermatically (subcutaneously).

The directions for preparing Coagulose for use are as follows: Add to the powder in the bulb 6 to 8 cc. of sterile water, at a temperature of 98°. Introduce the water into the bulb through the needle of a 5 cc. syringe. The rubber stopper should then be replaced

and the bulb immediately shaken, continuing the agitation until the powder is completely dissolved.

To fill the syringe, invert the bulb and remove the rubber stopper from its mouth. Insert the needle of the syringe into the solution in the inverted bulb and draw the fluid into the syringe.

By inverting the bulb before inserting the needle, one avoids the likelihood of drawing the foam or bubbles (caused by agitating the liquid in the bulb) into the syringe, as the foam will rise to the top of the solution, leaving the field for the insertion of the needle perfectly clear.

### PLASMODIAL ANEMIA

In spite of the modern theory of the etiology of malaria and malarial affections (mosquito-borne infection) this plasmodial disease continues to be rife in certain sections of the country, and bids fair to be, like the poor, always with us.

Every physician of experience appreciates the principles which should guide him in the treatment of the various acute manifestations of paludal poisoning, i. e., the destruction of the plasmodial hosts which have invaded the blood and which, if not eliminated, consume and destroy the red cells, the vital element of the circulating fluid.

When this purpose has once been accomplished the patient is but partly cured; the damage done to the red corpuscles must be repaired and the vitality of the blood restored, if re-infection is to be avoided. If there is any one condition in which direct hematinic or blood-building therapy is positively indicated, it is in Post-Malarial Anemia. As soon as the febrile period has passed, iron, in some form, should be given in full dosage. Pepto-Mangan (Gude) constitutes the ideal method of administering this essential blood-building agent in this as well as in any anemic condition. Both the iron and manganese in Pepto-Mangan are in organic combination with peptones and are therefore easily and promptly absorbed and assimilated without causing digestive derangement or producing constipation.

### CONDENSED MILK IN INFANT FEEDING

Dr. Eric Pritchard, of London, in his book, "The Infant: Nutrition and Management," mentions the results obtained from feeding infants with condensed milk in a number of cases. The following is a sample case:

A male infant, aged two months, was brought to the Queen's Hospital, February 10, 1913, for continuous screaming. The weight at birth was not noted, but the baby was reported to have been of average size; the weight on being brought to the hospital was 10 pounds. So presumably the infant had increased in weight some two or three pounds in the two months, and therefore could not have been systematically starved. For some days past the infant had been constipated, and had passed a very small quantity of water. The mother's breasts were normal size and appeared well developed, but milk could be expressed only with difficulty. I gave the mother instructions, when she next came to see me, not to feed the infant for three hours before attending the hospital. In the meantime, feeling fairly confident from the symptoms that the infant was now being starved, whatever might have been the case at an earlier date, I told the mother to give the infant one teaspoon-

ful of condensed milk and two tablespoonfuls of water after each breast feeding. Owing to a mistake on the part of the mother, it was not possible to give a test feed when the infant was brought to the hospital a week later, but in the interval the infant had gained 2 pounds 4½ ounces in weight, the largest increment I have ever seen registered in one week—in fact, no infant could possibly show such an increment unless it had been very seriously starved for some time previously.

### H-M-C IN CONFINEMENT

Speaking of "twilight sleep," *Ellingwood's Therapeutist* points out that the patient passes through a very short labor with so little pain that she subsequently forgets it, and declares that it is the only method for the expectant mother, labor progressing with so little muscular irritation that in many cases there is almost no pain, and, where pain occurs, it is so transient that the patient has no complaint to make.

Referring to these statements, Dr. B. L. Robinson, in a communication to the same journal, declares that "all that can be desired in this direction can be accomplished by Abbott's H-M-C tablets. I have used them," continues this correspondent, "ever since they were put on the market. All cases do not need them; in none should they be used indiscriminately, but in properly selected cases and at the proper stage of labor, they are all that can be desired. I can't describe the satisfaction, both to myself and to the mothers and families."



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## THE CANCER PROBLEM\*

By WILLIAM J. MAYO, M. D.,  
ROCHESTER, MINNESOTA

Cancer in its inception is a local disease, and, if removed at that time, is curable. Let us therefore bend all our efforts toward the recognition of the disease while in the curable stage.

In Germany a cancer propaganda, comparable to the tuberculosis work conducted in America, has led to marvelous results. A much higher percentage of cancer victims reaches the surgeon in time for operation there than we are accustomed to see in our own country. It is estimated that, as a result of the tuberculosis campaign in the United States, 20,000 lives that were formerly sacrificed to the disease are now saved each year. The laity must be educated in regard to cancer as they are being educated regarding tuberculosis; and, fortunately, means have recently developed that will be exceedingly helpful in extending the educational influence of the medical profession in this respect.

The great majority of people believe cancer to be essentially an incurable malady. I venture to say that, if one were to go into the street and talk with ordinarily well-informed citizens, he would find the conviction among them that cancer is incurable, and the few who, in their personal observation, had been cured were regarded as the exception, and not the rule. This view, I am sorry to say, is shared by many medical practitioners of the older school. Why has the public become so confirmed in the belief that cancer is incurable, and how has this pessimism been fostered? In no small degree for the following reasons:

*Heredity.*—Perhaps one of the most unfortunate results of a logical inquiry into the influence of heredity on the causation of cancer has been the encouragement of a belief that cancer is an hereditary disease, and therefore carries a stigma with it. The person who has been successfully operated on for cancer conceals the nature of his malady with the same solicitude he would probably conceal the fact that he had "done time" in a penitentiary. He does not wish his business world to know it, fearing that it would be looked upon as an obstacle to his career. Moreover, he does not wish his family to go through life thinking they are predisposed to this disease because he has had it. The result is, that of the hundreds of patients who have had cancer and who have been cured by operative means, the public knows little or nothing, while those who have had cancer and been operated on without success are known to all. The community remembers only too well the suffering of the victim and the dreadful end. The subject is discussed throughout the neighborhood; and too frequently the operation is confused with the disease, prejudicing people against surgical relief.

Is there any justification for the view that cancer is hereditary? So far as I know there is but little evidence that leads to this belief. We know that over-work, worry, and bad nutrition, or what may be called general unhygienic conditions, will so affect the tissues of certain families as to break down their resistance to tubercle bacilli. It is possible that in this sense there may be families whose tissues, subjected to chronic

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irritation, may be more liable to develop cancer than is the average individual. But even this is purely problematic, and by no means proved.

I have often been told of instances in which members of the same family have suffered from cancer at about the same time; and these coincidences are held of great weight. Yet these combinations may arise at any time, just as a card-player may occasionally hold four aces or a royal flush. Such hands are not due to chance, but to mathematical laws. This is equally true of so-called "cancer houses" and "cancer towns." Always, when carefully investigated, the facts concerning such places do not bear out the assertions concerning them. Small towns in older settled countries have more cancer than new towns, for they have more people of a cancer-age, the younger people having left for new fields.

The medical profession has done much to engender the belief in the heredity of cancer. The person supposed to be suffering from the disease is closely questioned regarding this point, and in such way as to lead him to believe that it is an exceedingly important fact. A good history should take heredity into consideration; but we should tell the patient and the family that at the present time there is no proof to warrant the belief that cancer is hereditary.

Hoffman, statistician of the Prudential Insurance Company of America, has carefully investigated the insurance mortuary records of this country, and he denies in totum that there is the slightest evidence presented in these enormous statistics to warrant the belief that heredity plays any part in the development of cancer.

*Syphilis.*—I have seen not over two dozen cases in which a good diagnostician would mistake syphilis for cancer; yet the liability to this mistake has been dwelt upon and greatly magnified, and many individuals have advanced from the curable to the incurable stage while an effort was being made through antispecific treatment to eliminate the possibility. The patient perhaps presents himself with cancer of the rectum. His family physician dislikes to suggest to him a mutilating radical operation. He thinks over the cancers of the rectum that he has known to have been operated on; and the record has probably been most unfortunate. The patients have been subjected to formidable operations, left with uncontrollable evacuations, and, later, have succumbed to the disease. The physician hopes against hope that it may be syphilis. He

knows that it is often impossible to obtain a history of syphilis, or that it may have been accidentally acquired. The patient is in the early stage of cancer—quite curable; but, since he has only a small focus of disease, it would be a terrible thing to subject him to a mutilating operation. Therefore the physician advises a prolonged course of antisyphilitic treatment. He eventually is confronted by the fact that it is not syphilis; and in the meantime the patient has passed from the curable to the incurable stage. Operation is then advised, and is done with the usual result.

The Wassermann reaction has fortunately come to our aid and to the patient's rescue. It is no longer legitimate to subject a patient to a prolonged course of diagnostic antisyphilitic treatment. We should know at once whether or not it is syphilis; and in this way "maybe it is syphilis" will not have the disastrous effect it has had in the past.

*Not Lack of Knowledge, but Lack of Examination.*—A mistake in diagnosis from lack of careful examination is the most common cause of failure to recognize malignant disease in time for a curable operation. Many diagnosticians make one or two physical examinations, but fail to continue to make them. If we are to protect our patients from misfortune, such examinations must be repeated as long as we have charge of the case. Who has not had the humiliation of having the patient first call his attention to a tumor that had developed sufficiently to be palpable since the last examination? The development of asepsis has brought about an aseptic conscience. The examining physician often hesitates to make the necessary examination because it involves soiling the finger. This is especially true of the rectum. Fifteen per cent of the patients who come to us with cancer of the rectum have been recently operated on for hemorrhoids or treated for stricture. It is true that the patients had one or both of these conditions, but they also had a cancerous growth, and in each one of these patients the growth was in easy reach of the examining finger, and could have been recognized by the sense of touch alone. How easy it is to carry a few thin finger-cots in the pocket so that such an examination can be aseptically carried out. The very presence of cots in the pocket suggests their use.

*Inefficient Operations.*—In this connection I come to a delicate subject, but one which I feel should be touched upon. There is too high a

percentage of patients with cancer subjected to inefficient operation by inexperienced men. Because the disease is early it appears as though it might be easily cured, and men who would not for one instant think of operating where a radical operation was to be done, will often make a small operation, which is futile and hopeless, and thus sacrifice the life of their patient, because it is in this early curable stage that the operation should be most carefully carried out.

The surgeon has had a great share in creating the feeling of hopelessness which exists among the laity, and has often discouraged the general practitioner by his unwarranted attempts at radical procedures in plainly incurable disease or extensive palliative operations which fail to palliate. We have all witnessed extensive radical operations for hopeless cancer, and, after a terrific and futile operation had been completed, have heard the surgeon say, "Oh, well, it was hopeless anyway." But does that justify us? I am sure that, if surgeons were never to make another palliative operation for cancer, thousands of lives would be saved that are now lost through delay. The laity know that such a patient was operated on, and that he died a horrible death; but they do not know that the operation was a palliative one, and they confuse in their minds the last stages of the disease with all its sufferings with the operation rather than with the disease. Far better that the patient go home, and tell the family and friends that it is too late for operation; then the suffering and death will leave no such confusion in the minds of the people of the neighborhood. They see just what the disease has done; and from that neighborhood patients will come early in contradistinction to the hopeless patients with inoperable disease who drift in from communities where too late or palliative operations have been the practice.

Do not understand me as saying that palliative operations should not be done. It is our duty to look after the individual and to do our best for him; but before we do a palliative operation, and especially before we do a mutilating operation, let us answer this question, "Will the palliation which the patient receives be worth to him the pain, the detention from his family, and the expense?" Or, better yet, let us bring it home and say to ourselves, "Would I allow one of my family to be subjected to this formidable

operation with such slight prospects of cure or alleviation?"

*Non-operative Methods.*—If late and palliative operations for cancer promise so little, have we any other recourse to relieve such patients? In this connection I have been interested in investigating the results achieved by radioactive substances: Röntgen ray, mesothorium, and especially radium in the cure or palliation of cancer. I have talked with many men of experience in the great clinics, and few have exhibited faith in the curative properties of these agents in deep-seated or advanced growths, although all have seen superficial growths cured. It is evident that radio-active substances have a greater influence in sarcoma than in carcinoma; but, strange to say, few cases of sarcoma have been reported in which the cure has lasted as long as four years. It would seem, therefore, that these agents are capable of curing permanently small superficial carcinomas and of causing to disappear about 30 per cent of sarcomas. As palliation is often marked and of long duration, and the use of radio-active substances subjects the patient to little discomfort, the field of application in such cases is broad. *But these agents should not be used in early growths curable by operation.*

The use of heat in cancer is an ancient practice. Ordinarily applied as a destructive agent by actual cautery, it is the only non-operative means which has stood the test of time. We are indebted to Percy for a scientific exposition of the value of heat, demonstrated both experimentally and clinically. He uses an electro-cautery with a controlling rheostat, and operates through specula lined with chambers for the continuous flow of cold water to limit the application. Many observers have shown that the embryonic cell, such as the cancer cell, has less vitality than the mature normal cell, and is especially affected injuriously by heat. The actual difference between the cancer cell and the normal cell in ability to withstand heat has not been determined, but is probably from 15 to 30 degrees. Percy demonstrated that heat could be made to penetrate deeply into the cancerous tissues, exerting a selective action by keeping in the range of this marginal difference. The cautery kills both the normal and the diseased cells, and in so doing develops a charcoal core which insulates the tissues against heat as though it were asbestos. Heat should be used, therefore, not as a cautery, but raised to such a degree



as to coagulate the embryonic cells, and this effect, by a slow cooking process, may be made to reach out into the tissues, destroying the embryonic cells, far in advance of its effect on the normal tissues. It is the scientific application carried to its logical conclusion of the only agent besides the knife that has retained its reputation throughout the history of medicine. So far as our experience goes, this method, applicable to a large variety of carcinomas in various situations, forms a palliation with prospect of cure in a group of cases in which the knife has been inefficient.

*Improved Methods of Diagnosis.*—How fortunate it is that there have recently been such additions to our diagnostic methods! The Röntgen ray has added enormously to our ability to see into the hidden places of the body. This remarkable agent must be classed with macroscopic pathology as developed by John Hunter, with the development of the natural sciences due to the work of Darwin and Wallace, and with the germ origin of disease as advanced by Pasteur and Lister. Röntgen's work has reformed diagnostic methods; it has replaced speculation with facts; and yet we are only in the daguerreotype stage of Röntgen ray photography. By this means we are now able to determine the nature of many obscure diseases of the digestive tract. For instance, in cancer of the stomach we can make, largely by the Röntgen ray, an early diagnosis in 93 per cent of the cases.

It is true that we had in the exploratory incision a means of fairly exact diagnosis in such cases, but this procedure carried with it a dread to the patient of an unnecessary operation and too frequently developed the fact that it was too late for operation. The radiograph, therefore, gives us knowledge of the early case, so that we may operate with a prospect of cure and may also save the patient the distress of an unnecessary exploration and ourselves the humiliation of making it.

The results of operations for malignant disease have enormously improved within the last ten years; and much of this improvement must be credited to the clinical pathologist. Where we formerly worked under the influence of the eye and hand, we are now working under the influence of the microscope. The *frozen section* enables us to see the innermost nature of the diseased tissue during the progress of the operation, while the knowledge is of the greatest

value to the patient. The development of diagnosis by means of the frozen section has been somewhat slow. The pathologist, trained in the preceding generation, had learned to recognize certain artefacts in the tissues and to feel lost unless he found them. There is as much difference between the living tissues studied in the immediate frozen section and the tissues studied after several days of preparation as between surgery on the living and dissection on the cadaver.

It has been necessary to develop an entirely new technic and understanding of living microscopic pathology comparable to what we have experienced regarding the development of gross pathology of the living as contrasted with post-mortem pathology. I often hear clinical men say that they would rather trust to their clinical experience than to the microscope. If they can properly do so, I wish I had their knowledge. I can only say that of all aids toward improving the actual results of operation, none has been of more value to me than the frozen section.

*Prophylaxis of Cancer.*—Taking all things into consideration, I think we may look upon the future of the cancer problem with hope. We are advancing rapidly in our ability to recognize the nature of the process early, and we see the lines of progress distinctly.

We do not as yet know the actual cause of cancer, but we do know that it has its soil in a disturbance of the protective mechanism, usually of the skin or the mucous membrane of the body. And this is as true of cancer in the lower animals as in man. All vertebrates suffer from cancer always in situations in which their habits expose them to chronic irritation. The horn-core cancer in the cattle of India is due to the irritation of ropes through a hole bored in the center of the horn near the skull with which they pull their load. Fibiger accidentally found that the sugar warehouse rats from America often had cancer of the stomach, and others a curious type of chronic gastric inflammation. He found that these rats often eat cockroaches; but he was unable to produce these effects with the cockroach which was indigenous in Denmark. Rats fed upon the American cockroach often developed the disease, and American cockroaches were infected with nematodes. These worms bore their way into the mucosa of the gastric membrane, and areas of chronic irritation result, some of which become carcinomatous.



In considering human beings the evidence as to the relation of chronic irritation to the development of cancer is overwhelming. The woman with myomata of the uterus is many times more liable to cancer of the body of the uterus than those without these tumors. Fifty per cent of the carcinomas of the pelvis and calyces of the kidney are associated with stone in the kidney. At least 20 per cent of carcinomas of the sigmoid have their origin in diverticulæ. Gallstones are found in at least 85 per cent of all carcinomas of the gall-bladder. Ulcer or some chronic irritation of the stomach occurs in half of all gastric carcinomas.

That the habits of man predispose to cancer cannot be questioned. Cancer of the groin in the chimney-sweep and sailor are due to riding on the rope-sling in the course of their work. Eighty-five per cent of cancers of the lip are in men who smoke. The Kangri-burn cancer from which the natives of Kashmir suffer, and which are in excess of 50 per cent of the total number of cancers seen in Kashmir, is due to the skin irritation of the charcoal baskets filled with hot coals which they carry on the lower abdomen. The cancer in the mouth of the Betelnut chewer comprises more than 50 per cent of all the cancers in certain parts of India. Chinese men are very subject to cancer of the posterior wall of the pharynx, due to the hot rice which

they eat; the women eat at the second table when the rice is cold, and are not thus afflicted.

Coöperation of the public is essential if we are to have the full benefit of our present knowledge. To say to the laity that cancer is curable in the early stage is not sufficient. They have no knowledge of what constitutes the early stage. Is it possible for us to teach them the nature of those influences which we know by experience may lead to the development of cancer, and, if so, should they be taught *prophylaxis*, as well as those indications which show that the disease has developed? No one has yet seen a cancer of the skin or visible mucous membranes of the body which was not preceded by some form of chronic irritation. Investigation of the inner surfaces of the body reveals the same conditions always preceding cancer. Let us therefore say to the public: "Go to your physician at once on the discovery of any sign or symptom of irritation about warts, moles, and benign tumors, or ulcerations, chronic inflammatory processes, or injuries, however slight, which fail to heal promptly."

When the laity understand that all sources of chronic irritations carry with them a deadly significance, the prevention of cancer will have been greatly advanced, and the percentage of curable cases which come to the only known cure—operation—will be enormously increased.

## CANCER OF THE UTERUS, AND ITS EARLY RECOGNITION

BY EDWARD A. WEISS, F. A. C. S.

PITTSBURG, PENNSYLVANIA

Medical literature abounds with articles pertaining to the importance of early diagnosis of cancer; teachers in medical colleges emphasize care in diagnosis; public lectures, and magazine articles on the subject are common; national, state and local societies for study of the subject have been formed; but, in spite of all this propaganda, hundreds of cases of cancer go unrecognized until too late for cure.

It has frequently been stated that cancer is increasing, and mortality statistics lends strength to the idea, as the report of the Census Bureau on Mortality in 1913 shows that, in the twelve most important causes of death, the greatest increase was that for cancer, which rose from 63 per 100,000 population in 1900 to 78.9 in 1913. It is doubtful, however, whether more people die of cancer than formerly, for it is quite prob-

able that the disease is now diagnosed, whereas in former years many cases were carelessly reported as exhaustion, change of life, hemorrhage, etc. Registrars insist, and properly so, on more explicit diagnosis. We may take it, therefore, that the increase in cancer is apparent, but not real.

To demonstrate the frightful mortality of cancer of the uterus we need only consider the statistics of 1906 as compiled by McGlinn. During that year in the registration area of the United States, out of a total death-rate for males of all ages, of 358,282 there were 11,166 who died of cancer, and out of a total of 299,000 for females, 17,800 died of cancer. This demonstrates that in that one year 1 male out of 32, and 1 female out of 11, died of cancer. The corresponding phthisis rate being for males, 1 out of 9.9, and

for females, 1 out of 10.2. This shows that almost as many women died of cancer as of phthisis.

In the same area for 1906 out of a total death-rate of 186,944 for males over 35 years of age, 10,644 died of cancer, and out of a total of 156,445 for females over 35 years of age, 16,879 died of cancer. This means that 1 man in 17.5 over the age of 35 died of cancer, and *1 woman in 9.2 over the age of 35 died of cancer*. The corresponding phthisis rate for that age period was for males 1 in 9.9, and for females 1 in 14. In other words, more women past the age of 35 died of cancer than of pulmonary tuberculosis. The stomach was the most frequent site of the disease in men, occurring in 43 per cent of all cases. In women the stomach was second, while the uterus was first, being the site in 27 per cent of all cases. From these figures we can see that more women than men die of cancer, and that the uterus is the organ most frequently affected.

The early recognition of cancer is the key-note of this article. All authorities are agreed that if the disease is recognized early the skillful surgeon can completely remove it. Innumerable statistics can be cited proving this assertion. In Germany the cancer problem has been solved to a great extent by the wide-spread education of the public in regard to cancer recognition. The German surgeons by means of this dissemination of knowledge have succeeded in saving hundreds of lives by early operation. In some of the large surgical centers of Europe the percentage of complete cures has risen from about 10 to 40 and 50 per cent.

The remark that "operation does not cure cancer" is very often heard. No, operation does not cure cancer if the disease is far advanced, and, unfortunately, a too-large percentage of the cases applying for surgical relief are too far gone for cure. In the advanced case not even the most skillful surgeon can remove the disease completely; he can only remove the accessible portion, and so relieve the patient for the time being. On the other hand, the cases of uterine cancer coming for operation before the disease has made much headway can be cured absolutely, as is shown by the excellent operative results of Werder, Wertheim, Clark, Reis, Dickinson, and other competent gynecologists.

There are several reasons why it is most important to recognize uterine cancer early; namely, because cancer of the uterus is the most frequent primary form of the disease; it occurs generally in middle life when the woman is in

her most active and most useful state; the disease is a rapid one, and few patients unless operated on early live over two years after the disease is once established; and because of the great suffering and distress it produces.

In the past, physicians themselves were often neglectful in recognizing the disease early; but in recent years they have been alive to the subject, and by careful examination have saved many lives. Unfortunately, however, the patient does not seek medical advice until the disease has made frightful inroads on her health; and the physician is consulted as a last resort. This neglect and failure on the part of the patient to consult her medical adviser early can be attributed to carelessness, indifference, ignorance, poverty, false modesty, or, probably, what is the greatest factor, the fear that she may be told that she has cancer. Very often, too, the physician does not consider seriously, and neglects to investigate carefully, such symptoms as irregular menstruation and leucorrhea, and dismisses the patient with the assurance that a few douches or some medication will relieve her. With such advice the patient naturally is satisfied, and glad to escape the embarrassment of examination; and she does not speak of the matter again until a severe hemorrhage or a foul discharge reveals the terrible mistake that has been made.

The burden of recognizing uterine cancer early rests on the family physician, for it is he rather than the specialist who is consulted first. It is quite true that the diagnosis in the early stages is often difficult; but when the family practitioner has the slightest doubt or suspicion, he should appeal at once to an expert, for the reason that it often requires the greatest diagnostic skill to make an early diagnosis. It is infinitely more to the credit of the attending physician to be over-cautious than to delay until hope for a permanent cure has passed. To ask for consultation is not a confession of ignorance on the part of the family physician, but it is an evidence of honesty.

It is an unfortunate fact that the early symptoms of cancer of the cervix are few and not always characteristic. Bleeding and watery discharge are practically the only symptoms which attract the patient's attention. The bleeding may be only slight, and may be noticed only after some exertion, such as straining at stool, lifting burdens, during intercourse, or when introducing a syringe. Sometimes the first sign may be an occasional spotting of blood noticed between the regular menstrual periods. The bleeding is

rarely free, and for that reason is considered trivial. The menstruation may be increased in amount and of longer duration, but even this may be absent. Leucorrhœa, which is present more or less in almost every woman who has borne children, is increased in amount, assumes a distinct odor, and is irritating to the vulva in spite of douching, but a blood-streaked leucorrhœa is always significant. While the causes of uterine bleeding and discharge are many and of a transient nature, we will state with all positive emphasis, *that any irregular bleeding or suspicious discharge should never be treated under any circumstances without making a careful digital examination.* If examination be refused by the patient, the attending physician should refuse to prescribe, and bluntly tell the patient the danger of indiscriminate drugging or douching. The writer has seen several cases of advanced carcinoma where the attending physician has at some earlier time prescribed styptics or douches without having made an examination until too late.

Of equal importance is bleeding after the menopause, especially after the menses have ceased for several months. While other conditions,—such as myoma, polypi, and senile vaginitis,—may cause occasional spotting or bleeding in a woman after the menopause, the condition should always be considered malignant until proven otherwise by careful examination. A foul-smelling discharge may be due to the same benign condition. A necrotic discharge with tissue débris is a late condition of cancer, but a serous, slightly bloody discharge resembling beef brine occurs in the very early stage, and is usually characteristic. The physician should never allow himself to be deterred from making an examination, *even if the patient is bleeding.* To wait until the bleeding ceases may mean the life of the patient.

It is to be regretted that text-books in discussing uterine carcinoma call so much attention to such factors as age, family history, and social conditions of the patient. While it is true that the disease is more common from the fortieth to the fiftieth year, a relatively large percentage of cases occur much earlier. In fact the writer's experience in a large series of carcinoma in women in all walks of life showed the average to be 38 years, the youngest being 20, and the oldest 83, with a surprisingly large number below thirty. We may repeat therefore that *the age of the patient is not an important factor in the diagnosis of uterine carcinoma.*

So much importance has been made of the family history that most physicians are greatly influenced by it. In our same series of cancer cases, a family history was obtained in only about 18 per cent, and most of these were decidedly doubtful, so that now we disregard entirely the family history in so far as its being a factor in the early diagnosis. It is true that occasionally remarkable instances of apparent heredity are encountered, such as in the family of Napoleon, but these should be considered coincidences rather than diagnostic data.

We have been taught that trauma plays an important part in the etiology; and, while it is true that carcinoma of the cervix occurs most often in women who have borne children and who consequently have a traumatized cervix, yet we must remember that every operator of considerable experience has seen carcinoma of the cervix, and more often carcinoma of the fundus, in nulliparous women and virgins in whom the cervix has never had the slightest trauma. Furthermore, we must always remember that *pain, cachexia, and loss of weight are not early symptoms, and when these symptoms are present the patient has passed the operable stage, and is doomed to an early and miserable death.* Uterine cancer is sometimes found early in women who apparently are in the best of health and suffer no inconvenience whatsoever. Not infrequently we are told that there has even been a recent increase in weight, which demonstrates how deceptive the onset of the disease may be and how carefully we must examine every patient.

Of the local signs of cancer none is so characteristic as *friability of the tissue.* This friability, and the tendency to bleed when grasped with an instrument or when the finger manipulates the cervix, may always be regarded as strongly characteristic. Mere bleeding may be due to various causes, but the breaking down of tissue is almost invariably malignant. When the slightest doubt exists a careful excision of some of the diseased area, including some adjacent healthier tissue, should be made, and the tissue submitted for microscopic examination. Also in this matter great care must be observed. The excised tissue should be submitted only to an expert pathologist, as much experience is necessary to correctly diagnose doubtful tissues. When uncertain as to the skill of the microscopist, a second pathologist should be consulted; and, if necessary, a second section can safely be excised and examined.

Cancer of the cervix in the early stages is not a large mass, in fact it may manifest itself as an



ulcer-like area with undermined edges. Such lesions are frequently treated routinely by caustics, tampons, etc., without the real disease being suspected. Any ulcer-like lesion of the cervix that does not respond to cleanliness and a few ordinary applications, should be referred immediately to an expert for diagnosis. Prolonged treatments have been responsible for many deaths from cancer, and the delay is often due to unwillingness of the attending physician to ask for consultation, or to his unshaken belief in the efficacy of the time-honored and much-abused local treatments.

It must be remembered that there are different forms of uterine carcinoma: namely, (a) carcinoma of the vaginal portion, (b) carcinoma of the cervical canal, (c) carcinoma of the uterine body. The vaginal portion may be the site of either the exfoliating or the cauliflower type, and the infiltrating or nodular form. The exfoliating form is the most easily recognized, as inspection through the speculum shows the cervix enlarged and soft with minute polypoid projections that not only bleed on manipulation, but break down easily, which distinguishes the condition at once from benign polyp or erosion.

If the growth is situated within the substance of the vaginal portion, it is hard, irregular, nodular, and cartilaginous to the examining finger. When the overlying mucous membrane is intact, the diagnosis is difficult; but when ulceration occurs the picture is characteristic, although the tissue breaking down is not abundant, as in the cauliflower variety. Frequently it is necessary to employ considerable force, either with the finger or an instrument, to penetrate the cartilaginous area, and in suspicious cases such manipulation is imperative for an early diagnosis. In differentiating carcinoma of the cervix from other conditions we may encounter benign mucous polypi. The surface while bleeding is not friable, and each polyp has a pedicle which is not infiltrated, but superficial. Again, acuminate condylomata, especially when occurring during pregnancy, are suspicious; but, unlike cancer, they are multiple, and are found in other parts of the vagina, and they leave no ulcerative base when removed.

Erosion of the cervix when accompanied by laceration and ectropion has an angry appearance, and is also attended by occasional bleeding and abundant discharge; however, the irritation is superficial, and the tissue is firm. Such a lesion is frequently benefited by treatment, but as sluggish erosions should be considered pre-

carcerous, careful excision and repair of the cervix is advisable.

The so-called cystic degeneration of follicular erosion of the cervix manifests itself as large, hard, irregular nodules scattered throughout the superficial and deeper portion of the cervix. On puncturing these enlarged Nabothian follicles, clear thick mucus escapes, which establishes its benign nature. During pregnancy such a cervix is greatly enlarged, discolored, and is very suspicious in appearance.

Ulcerations occurring in the prolapsed exposed uterus form irregular ulcerated areas, involving, not only the cervix, but other portions of the vagina that have been subject to friction and irritation. The floor of such an ulcer, as distinguished from carcinoma, is free from infiltration; and with replacement of the prolapsed uterus into the vagina for a few days distinct improvement is noted at once. Similar ulcerations and bleeding may occur as the result of an ill-fitting or rough pessary. Cleanliness, and rest for several days after the clinical picture, are called for. Such ulcers should be kept under careful observation, however, as such long-continued irritation may be a decided factor in the development of subsequent malignancy.

It is obvious that the diagnosis of cancer of the cervical canal is more difficult than in the former variety. As the os is usually closed, the palpating finger does not recognize the growth easily, except that some irregularity and hardness of the cervix is noted in addition to the bleeding that results from the manipulation. The careful introduction of the finger or curette into the cervix will reveal the hard, irregular, but more especially the friable walls of the canal. The lateral vaginal walls, as well as the parametria, are early involved in this type of cancer, which makes the prognosis more grave. Rectal examination is often valuable to demonstrate the supravaginal thickening, which may not always be recognized by the finger in the vagina.

The clinical picture in the early stage is really that of carcinoma of the fundus, from which it must be clearly differentiated. It must be differentiated also from small fibroids situated low in the uterus or cervix. The so-called senile vaginitis or cervical catarrh in women past the menopause may cause suggestive symptoms of carcinoma on account of the foul odor and slight bleeding. In these conditions, however, there is no enlargement or friability, and cleansing applications soon show the absence of malignancy.

Cancer of the uterine body is frequently over-

looked because it does not present any characteristic symptoms, as in disease of the cervix. Moreover, the disease occurs in about one of the body to fifteen of the cervix. Most carcinoma of the uterine body occur after the menopause, and practically the only symptoms are bleeding, slight at first, and a foul, watery discharge, more pronounced than in cervical carcinoma. Regular labor-like pains are sometimes present, especially when the cervix is not patulous. In the early stages the uterus shows very little, if any, enlargement, as it usually occurs in an atrophic organ. The diagnosis can be made only by the sound or curette. Cheesy, granular débris is usually quite characteristic, although it must be carefully differentiated from hypertrophied or decidual endometrium, mucous polypi, degenerating myoma, or remains of abortion, all of which may present the same symptoms as cancer. The expert pathologist alone can make the diagnosis; and his services in such conditions must always be sought.

The family practitioner occupies a position of exceptional opportunity for the proper dissemination of knowledge regarding cancer. He is in intimate contact with his patients, and enjoys their confidence; and consequently any advice or instruction coming from him will have infinitely more weight than magazine or newspaper articles and lectures. It is therefore imperative that he should be faithful to his trust, and not only constantly guard and protect his patients against

the evils of self-drugging, nostrums, quacks, and improper medical knowledge, but he should instruct them, particularly his women patients, regarding menstrual irregularities, and he should insist upon an immediate examination when any unusual symptoms arise. Furthermore, as a wise prophylactic measure, he should encourage every woman who has passed her fortieth year to have an examination of her pelvic organs at least once, or better, twice a year. The slight sacrifice of time and delicacy will be more than repaid by the satisfaction obtained by both the patient and the physician. Not only should the patient be instructed to return, but definite biyearly dates should be agreed upon for examination. It is by such insistent and persistent efforts that hundreds of useful lives may be saved.

The practical deductions to be made therefore are:

1. That cancer of the uterus is frightfully prevalent.
2. That delay is fatal, and that early diagnosis alone will save the patient.
3. That every unusual and irregular bleeding or discharge should be carefully investigated at once.
4. That the family physician must properly instruct his patients regarding the early signs and symptoms of the disease.
5. That frequent examination of women past the fortieth year should be encouraged.

## THE TREATMENT BY HEAT OF ADVANCED CANCER OF THE CERVIX (PERCY'S METHOD)

DONALD C. BALFOUR, M. D.

Mayo Clinic

ROCHESTER, MINNESOTA

The curability of cancer of the cervix in its early stages compares very favorably with that of cancer in any other situation in the body. Rarely, however, is the disease recognized and treated at such a favorable time; and, too often, the process is so far advanced that a radical operation cannot be done, or any treatment instituted which will offer a prospect of cure. It is unfortunate that a disease which could so easily be detected if the slight symptoms were immediately and thoroughly investigated, and which could be so favorably treated at its inception, should carry such a low percentage of

operability. In this country an average of not more than 40 per cent of these cases reaching the surgeon can be considered suitable for a radical operation. In Europe a higher percentage is claimed, the statistics of Wertheim, Schauta, Franz, and Orde showing an operability of 45 to 50 per cent. Two important factors make this true: First, the public freely consults the large centralized foreign clinics, chiefly as a result of an energetic cancer educational movement amongst a people whose attitude toward these free clinics is very different from that existing in this country; second, the

greater the experience of the individual surgeon or clinic the stronger the inclination to see in the border-line cases possible chances of cure, so that, other things being equal, the surgeon of the greatest experience will find the highest percentage of operability.

It is unnecessary to dwell on the familiar causes on which the existing low operability depends. The insidious nature of the disease, the early symptoms usually appearing at an age when the patient readily accepts the irregular flow as incident to that period of her life, absence of pain and of constitutional symptoms, and, unfortunately, often failure on the part of the physician when consulted to make a careful examination—all of these factors contribute to the infrequency with which cancer of the cervix is recognized in its early stages. To these must be added a prevalent skepticism on the part of the laity toward any operative treatment—a skepticism born chiefly of the individual's own observations of failures in the surgical treatment of advanced cancer. This attitude results in a "vicious circle,"—namely, delay until malignancy is advanced; then "palliative treatment," and failure to cure; the neighbor with early symptoms is acquainted with the fact that her friend had "cancer," but not with the actual circumstances; she, therefore, has no faith in surgical measures, and tries other treatment until the curable stage has passed. Sooner or later more of the laity will realize the importance of early investigation of suspicious symptoms; and with such co-operation the surgeon will be able to extend to these patients a reasonable assurance of an increasing percentage of cures.

At the present time at least 60 per cent of patients are apparently beyond reasonable hope of cure when first seen by a surgeon; and in fully 35 or 40 per cent any primary radical operation is out of the question. It is this latter group of advanced cases only which will be discussed here, for I believe that cancer of the cervix in its advanced stages distinctly warrants palliative measures.

There are various resources at our command for affording such patients temporary relief—for example, the curette, cautery, acetone, zinc chlorid, and other escharotics, ligation of the blood supply, radium, etc. I have been prompted by recent personal experiences with the method advocated and developed by Percy<sup>1</sup> for the treatment of these "hopeless" and "inoperable" cases of cancer of the cervix to place on record my observations of this particular treatment.

For many years heat has been recognized as a very efficient means of destroying carcinomatous tissue. Byrne<sup>2</sup> drew attention to its efficacy as a destructive agent of the cancer cell, and since then heat has been used to a considerable extent in the treatment of cancer of various forms and stages. For many years in our clinic the cautery has been a favorite means, not only for inhibiting cancer, but it has supplanted the knife in the excision of certain circumscribed cancers, particularly of the mouth, bladder, and skin.

In advanced carcinoma of the cervix the heated soldering-iron undoubtedly has been of definite value in the amelioration of distressing symptoms of these unfortunate patients; and occasionally its use has been followed by a surprisingly long abeyance of the process. Nevertheless, I believe that the modification which Percy has developed, if properly carried out, offers the best opportunity for the destructive action of the heat to reach the limits of the disease, and that it possesses distinct advantages over any other form of treatment with which we are familiar.

At first the application of this method was restricted to the most advanced cases; but, of late, its unique destructive effect becoming evident, the scope of the treatment has extended, and it has been employed as the primary stage to a secondary total hysterectomy in an occasional so-called "border-line" case. In discussing the advisability of any treatment for advanced malignancy of the cervix, the patient or her family should clearly understand the seriousness of the condition; and they should especially appreciate the purpose of the treatment. In apparently hopeless cases it should be carefully explained that the object of surgery is to relieve whatever distressing symptoms may be present, and prolong life. Perhaps in no other instance of advanced malignancy is one able to offer such decided retardation of the progress of the disease and such complete relief of symptoms. In those cases in which a primary radical operation is not possible, but in which a total hysterectomy may be advisable later, it is important to have this understood.

Briefly, the basis from which this treatment has been evolved depends upon the fact that a slow-heating process is much more efficacious in such conditions than a vigorous burning. In his various articles on the subject Percy has shown quite conclusively by experiment that heat will permeate living tissue much more readily



and effectively if maintained at a comparatively low degree for a long time than if a high degree is maintained for a short time. Referring to certain advantages in the instruments devised by Percy, and in the application of the method, I should say that (1) one may obtain the best possible exposure of the disease without incision by means of the vaginal dilator; (2) the water-cooled speculum permits uninterrupted heating of the malignant area without the danger of burning uninvolved vaginal walls or external genitals; (3) the preliminary abdominal exploration often discloses important findings; (4) the hand of the assistant used as a guide to the degree of heat, directs the point of the cautery and at the same time supports the cervix and protects the bladder and rectum. Accurate and occasionally valuable information as to the extent of involvement, condition of the glands, etc., is thus obtained; and the assistant, through the low midline incision, is able to give helpful advice as to the intelligent application of the heat. The treatment is practically free from risk; patients are up on the fifth or sixth day; convalescence is remarkably comfortable; and any pain which may result is associated with the abdominal incision, and is not incident to the heating.

As yet I cannot speak of any save immediate results, since we have used the method only from January 1, 1914, to the present time (May, 1915). In that period 31 cases of cervical carcinoma, which were too far advanced to permit primary radical operation, have been treated. Certain beneficial results have already become quite evident in this series. In all there has been cessation of bleeding and discharge immediately following the treatment with a corresponding improvement in the general condition, an improvement, of course, particularly striking where bleeding, sepsis, and absorption had gone on to the point of emaciation. We have been fortunate in being able to closely follow the results of the treatment, the majority of patients returning for examination in six weeks to three months; and we have repeatedly noted the unique change which has taken place in the local manifestations of the disease in these patients. To find at this re-examination a freely movable uterus, with an atrophic, smooth, clean cervix and vaginal vault, is not uncommon. Patients in whom gross evidence of the disease exists after a thorough initial treatment have not, except in a few instances, seemed to be suitable for a secondary treatment; but sufficient time has not

yet elapsed for conditions indicating repetition of the treatment to develop.

With our present limited knowledge of the scope of the treatment, I believe that, regardless of how favorable the result may appear to be, if it becomes technically possible and of sufficient promise and no logical contra-indications are present, a secondary total hysterectomy should be done. Of the patients treated by the method in our clinic a secondary hysterectomy has been performed in 9. It is important to note that in 5 of these cases subjected to the radical operation, the pathologist, in careful search of the specimens, has not been able to demonstrate any evidence of malignancy. Despite this, and although malignancy may be destroyed as far as can be determined, with our uncertain information as to the life-history of cancer, it seems more rational to consider such a uterus potentially malignant.

It is possible that in some of the patients in whom the cautery was used, and who later had a total hysterectomy, a primary hysterectomy would have been possible. We have found, however, that in border-line cases a preliminary heating process is of undeniable value in increasing ultimate chances of getting rid of the disease. The destruction of the cancer cell is not the only advantage; in from two to three months a shrivelled cervix in a scarred, firm vaginal vault makes it possible to do a much cleaner and more satisfactory operation from a technical standpoint. The foul infected tissues of the cancerous cervix are sterilized, making the operation less exposed to septic complications. In this connection it is interesting to note that the favorable, immediate and, possibly, ultimate result may depend to a considerable extent on the destruction of the infected, non-malignant portion of the disease, whatever the organism may be. When it is realized that of those individuals dying from cancer of the cervix a relatively small percentage show any evidence of metastasis, the disease, being still a strictly local one at the time of death, the rôle of the bacterial infection becomes an important one.

Percy's writings and technic have been followed as closely as possible in carrying out the method in our clinic. The complications have been vesical fistulæ, late secondary hemorrhage, and vaginal grafting. The autogenous grafting of cancer may readily occur, as, in the great stretching of the vagina, cells may become implanted in the fissures in the walls. We have had three cases in which secondary malignancy

developed at the vulva. This should be prevented by introducing into the vagina several ounces of Harrington's solution as the speculum is withdrawn, so that the fissures will be rendered unsuitable soil for such grafting, and any fresh cancer cells present will be destroyed. In two cases vesicovaginal fistulae resulted from the treatment; but it is significant that these occurred in our earlier experiences. In both patients a total hysterectomy had been done, recurrence having taken place in the vaginal vault with fixation to the bladder. At this time we were neglecting the precaution of opening the abdomen. Since these experiences the abdomen has been opened routinely. Danger of secondary hemorrhage will be minimized if the heating is thoroughly carried out for a sufficient length of time, and the internal iliac arteries are ligated in the more advanced cases.

The electric cautery should not be used to the point of cauterization, but as a heating instrument only. This is a most important factor in the treatment. The rheostat should be regulated so there is never any charring of the tissues, since this acts as an asbestos covering, preventing penetration of the heat, but rather a slow-heating or cooking process should be con-

tinued until the assistant's gloved hand within the pelvis grasping the cervix and uterine body is made uncomfortably hot (120° F.). It has been shown experimentally that this degree of heat is sufficient to kill any cancer cells. An hour or more is often necessary to accomplish the desired object and to systematically heat all the segments of the carcinomatous mass. This treatment requires patience, especially after one has been accustomed to the rapid method of cauterization with soldering-irons; but, I believe, the results more than compensate for the time expended and the results are more or less directly dependent upon the earnestness of the effort.

I hope later to publish more definite results and details of individual cases; but in the meantime I desire to draw attention to the method as one worthy of conscientious trial.

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## THE X-RAYS IN THE DIAGNOSIS OF FOCAL INFECTIONS\*

By FRANK S. BISSELL, M. D.

MINNEAPOLIS

In any search for concealed foci of infection, the Röntgen rays play an indispensable role. It is due solely to the graphic revelation in the röntgenogram of pus-pockets at the roots of teeth that attention is so clearly focused upon this phase of the subject at the present time. Thus the vista of a new era in medicine opens before us, for the dental surgeon may no longer, with complaisance, seek mechanical perfection to the exclusion of accepted and proper surgical procedure, nor may the physician rest content with such incomplete diagnoses as articular rheumatism, arthritis deformans, endocarditis, cholecystitis, osteomyelitis, nephritis, peptic ulcer, and other diseases of infectious origin, until he has exhausted every possible means to determine the presence of local foci in various parts of the body.

The records of my x-ray laboratory, covering

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a period of two and a half years, show that we have found dental abscesses in 516 cases. Only during the past few months have I made it a practice to take careful histories in these cases. With but two exceptions, there have been symptoms of systemic disease, varying from the mild signs of a low-grade intoxication to those of active inflammation of the meninges, or of one or more of the other serous or mucous membranes of the body. Two patients, who had been confined to their beds for several months with diagnoses of multiple neuritis and "probable meningeal involvement," began to improve, and progressed to recovery after the elimination of several dental foci, which were localized with the x-rays. Another patient was referred for radiographic examination on account of continual, unexplained, unilateral headache. The skull radiographs showed an apparent caries of the temporal bone while the dental radiographs revealed three unsuspected root-abscesses. The af-

ected teeth were removed, but the skull was not treated, the patient refusing operation; and the symptoms gradually ceased until at the end of two months the patient reported himself cured. The diagnosis of caries was not confirmed, and we have not yet been able to obtain further radiographs of the skull to determine whether any bony changes occurred following treatment. Two cases have developed a frank pneumonia, following extensive extraction, suggesting the probability that their particular strain of organism was the pneumostreptococcus.

This brings my discussion, very naturally, to a theoretical consideration of a large group of cases whose radiographic picture is that of a peribronchial infection, somewhat resembling that of tuberculosis, but differing therefrom in certain essential particulars. We have found dental abscesses in so many of these cases that I have come to regard them as "peribronchial streptococcicoses," following Dr. H. L. Ulrich's suggestion as to terminology.

The radiographic differences appear to depend upon the manner of invasion, the streptococci being disseminated by the blood-stream, while the tubercle bacilli follow the lymphatics of the bronchial tree. I wish to emphasize the statement that this is an unestablished hypothesis, still lacking scientific confirmation.

Another striking and frequent coincidence is that of a local pus focus at some point, and symptoms of renal calculus, either with or without the presence of stone. Since the demonstration by Rosenow of streptococci in the bladder-wall in gall-stone cases, their infectious origin is quite generally accepted. I have not been able to find in the literature, however, any analogous theory as to kidney-stones; yet conditions appear to be ideal for such an analogy. Thus, streptococci, borne by the blood-stream from some point of focal infection, may induce thrombi in the terminal arterioles of the kidney, with the result that plugs of mucus and pus fill the neighboring tubules, in this way offering an ideal matrix for the deposit of urinary salts to form calculi. If portions of this organized plug pass through the ureter, the patient may suffer typical attacks of renal colic, even though there is not sufficient calcification to give a radiographic shadow.

Doubtless many cases of obscure infection are due to persistent foci in some of the nasal accessory sinuses. To obtain radiographs of these sinuses and cells, is a mere problem in technic;

but to properly interpret them requires the self-assurance born of patience and experience. Chronic disease of the ethmoidal cells is so common that it is difficult to obtain radiographs of perfectly normal cases for study.

In any consideration of this subject one should not omit chronic mastoid disease as a possible source of systemic infection. Dr. P. M. Hickey, of Detroit, editor of the *American Journal of Röntgenology*, writes me under date of January 26 as follows: "We recently had a case of chronic skin-infection characterized by constant groups of serious 'boils' in which the infection came from a chronic mastoid. This was demonstrated very nicely, both bacteriologically and by the clinical history." In our own work, we have seen several cases of intractable skin infections clear up after the elimination of dental abscesses.

The interpretation of dental radiographs does not, as a rule, offer serious difficulties. A frank abscess in the alveolar process so separates or destroys the bone lamellæ that a more or less circumscribed area of decreased density results. The presence of a low-grade osteitis around a diseased root may be manifest by a lack of contrast between the bone and root, as well as in the bone itself. A partial destruction of the periodontal membrane, when it can be demonstrated, is evidence of a local infection. There is, perhaps, no field of radiography in which technic is so important, because small areas of infection may be readily overlooked in any but the most accurate radiographs. In many cases it is difficult to avoid distortion; but the element of error is increased in direct proportion to the degree of distortion. Hence it is frequently necessary to make several röntgenograms at various angles of projection before a pathological process can be definitely ruled out. The ideal method is doubtless the stereoscopic examination; but this procedure so materially increases the cost that it is employed only in selected cases.

The röntgenograms presented illustrate a number of important points from which valuable deductions may be drawn:

First.—That the disease known as pyorrhea is usually a necrotic disease of the alveolar process, and so is not amenable to any treatment which does not attack the bone.

Second.—That teeth with well-filled root-canals are quite as prone to infection, as are those with imperfectly filled canals.

Third.—That abscesses rarely form around vital teeth, while they are exceedingly common



at the roots of devitalized teeth. Hence, devitalization of teeth should be done only after careful consideration of this fact; and physicians should, as a routine procedure, inspect the mouths of their patients to determine, if possible, whether teeth have been so treated.

Fourth.—That there is a close relationship

between the ordinary bone-abscess with a sequestrum, and a dental abscess with a dead root. It is quite as essential to remove the root as it is to remove the sequestrum.

Fifth.—That antrum and other nasal accessory sinus disease is frequently secondary to a root-abscess.

## A BRIEF RÉSUMÉ OF THE RECENT ADVANCES IN THE THERAPY OF LUES\*

By H. E. MICHELSON, M. D.

VIRGINIA, MINNESOTA

Fracastor, in his Latin poem written in 1543, described most minutely the clinical pictures of secondary and tertiary lues. He also discussed the therapy with mercury. This was in the sixteenth century. Still nothing new was added, either in a clinical or therapeutic way, until the last decade, when three most important discoveries were made and the results of them has completely revolutionized the battle against syphilis. They are the following:

1. The discovery and identification, according to Koch's expostulates, of the causative agent.
2. The Wassermann reaction.
3. The discovery of Ehrlich's arsenical preparations.

Clinically, the discovery of the treponema pallidum is of the greatest importance. We are now able to definitely state whether or not an initial sore is luetic or chancroidal; and thus treatment may be instituted early. The spirochetes may be recovered from all of the forms of syphilitic affections—the primary and secondary, and with difficulty from the tertiary. Some syphilographers hold that there is no case on record of infection from a tertiary lesion, although active spirochetes have been demonstrated in the lesions which are infectious for animals, but only under conditions which could never occur clinically.

The technic, especially in primary sores, for the demonstration of the treponema is simple. Two methods are in vogue:

1. *Stains*.—Here the chancre is thoroughly cleansed with distilled water, and gently brushed with sterilized gauze until there is an oozing of serum. The smear is made in the usual way, and the various staining technics, as that of Levaditi or Geimsi, are used.

2. *Dark Field-Illumination*.—This is a much

more reliable, quicker and more satisfactory method, but requires special apparatus, which is rather expensive. Here the sore is cleansed and gently curetted with sterile gauze, being careful not to produce bleeding, as the red-blood corpuscles obscure the field. A drop of the serum is gathered on the slide, and a cover-slip is firmly pressed over the drop. It is important to have it firmly pressed, for, if the cover-slip does not adhere, the film will show motion, and this makes focusing difficult. The smear is examined directly, and the spirochetes show up as highly refractile bodies against the black background.

*The India-Ink Method* should be mentioned. This is not a stain; but the principle is the same as the dark field. Chin-Chin ink must be used, as it is the only brand which is clear from particles that simulate spirochetes. A loopful of serum and a loopful of the ink are thoroughly mixed, and spread into a thin film on a slide. No cover-slip is used. Here the spirochetes show up as refractile bodies, to which the ink does not adhere, leaving a narrow moat around them.

*The Wassermann Reaction* is merely a very useful guide in conjunction with all of the ordinary and concomitant signs and symptoms of lues. Its greatest value is as a diagnostic agent, and it should not be regarded as an indicator for or against specific treatment. Here the general clinical aspects of the patient must be reckoned with. There are many features about the Wassermann reaction that the best serologists do not understand. Here is a common example often cited and very frequently noticed. A patient has had lues ten years ago. He received adequate and conscientious treatment. At regular three month intervals his Wassermann is reported as negative. He is to be married, and he insists upon another salvarsan

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injection for safety. A Wassermann taken two weeks later is positive. Vigorous treatment may then be instituted, but the Wassermann is persistent. This is the so-called provocative injection of salvarsan; and the nature of the phenomenon is not known. Also it is well to know that in some cases a negative Wassermann cannot be produced. As a therapeutic guide the Wassermann is not so readily altered by mercury as by Ehrlich's arsenical preparations; but mercury-obtained negatives are more stable than the arsenical ones.

*The Luetin Reaction* was advocated by Noguchi after he had succeeded in growing the *treponema pallidum* in pure culture. It is a cutaneous reaction, and fulfills the requirements of a specific reaction. It has not met with such general favor as the Wassermann owing to the fact that it cannot be so generally used, but it is a valuable aid used in conjunction with the Wassermann. Luetin is a sterilized and carbolyzed emulsion of the *treponema pallidum* grown in ascites agar. A control emulsion is made of the culture medium without the organism.

The test and control solutions are made by mixing .07 c.c. of emulsion with .33 c.c. of normal saline. The injection is made intradermatically, not deeper than 4 to 5 mm. A hypodermic with very small-caliber needle being used. The usual site for injection is the anterior surface of the forearm. The luetin is injected into one arm, and the control solution into the other.

In non-luetic cases all that is seen is a slight erythema which remains as such for twenty-four to thirty-six hours, gradually fading and forming a small nodule, which disappears in three or four days.

In luetic cases the site of the control shows no reaction, while three distinct types of positive reaction occur:

1. Erythematous, a diffuse erythema with induration.
2. Papular, a papule surrounded by an erythematous zone.
3. Pustular, a pustule which may disappear or undergo absorption. This is in reality a later stage of the papular reaction.

The reaction in positive cases usually begins to appear in twenty-four hours, gradually increasing in intensity up to seventy-two hours or even longer, and then begins to recede. In the majority of cases of primary and secondary lues the reaction is negative, except where secondaries have been treated. In obscure tertiary

conditions where the Wassermann is negative, the luetin reaction is most useful, a high percentage of the cases showing a positive reaction. In paresis and tabes dorsalis 60 per cent of cases show a positive result. In hereditary syphilis all cases show positive results. In all types of syphilis it is observed that specific treatment tends to intensify the cutaneous reaction.

*Salvarsan and Neosalvarsan.*—It is universally agreed that no case of syphilis should be treated without the aid of the arsenical preparations unless some of the contra-indications for their use are present, such as cardiac, renal, or vascular diseases, not luetic in origin, or severe impairment of any of the parenchymatous organs.

The mode of administration almost exclusively used is the intravenous one. It has so many advantages, and so few of the disadvantages of the hypodermic or intramuscular methods, that it is the almost universally accepted one. Here the neosalvarsan is supreme because of the ease of administration. It is readily soluble in from 10 to 20 c.c. of water, and is now injected directly into the vein with a 20 c.c. Record syringe. The number of doses, the interval, whether the old or the new, or the best way to combine the treatment with mercury, is mostly a matter of personal taste. At a symposium held in Berlin in May, Lesser stated that he gives three to four intravenous injections of from .3 to .4 gm. in males and from .2 to .3 gm. in females every three or four weeks with mercury during the interval, administered either intramuscularly or percutaneously.

Wechselmann strongly condemns the combined method, and in an elaborate and painstaking research decided that the majority of salvarsan fatalities were due to the combined method, the mercury causing intoxications by damaging the eliminating organs. The difference between the effective and dangerous doses of mercury is very small, and the personal tolerance shows large variations, so that a patient surviving a large dose of mercury is really lucky, but always sustains some injury to his eliminating systems. Wechselmann has given 45,000 injections of salvarsan without a fatality; and he maintains that his cures are just as permanent as, and more rapid than, under the mixed method, or with mercury alone.

Blaschko plead for long-continued, energetic treatment of any method so that the grave consequences upon the parenchymatous organs may

be forestalled. Ehrlich at first regarded his discovery as a *therapia sterilisans magna*, but later advocated a mixed treatment.

The arsenical preparations have occupied so much of the literature in the past three years that mercury has not been discussed much. True, it has been mentioned, but always in connection with salvarsan and the relation that it bears to that drug in schemes for the treatment of lues.

Ehrlich, in his long-continued search for a specific, worked on the assumption that an agent which is specific for a disease bears the same relationship to the causative agent that an antidote does to poison,—that is, if introduced into the system before irreparable damage has been done, it will render the noxious element of the disease absolutely harmless. The arsenical preparations have proved themselves to be efficient spirochetacides, but to no greater degree than mercury, for we know that mercury succeeds in curing infected persons, so completely wiping out the disease that re-infections may occur. Formerly it was believed that a man once infected with lues was thereafter always immune to the disease, even though a complete clinical cure was effected. Today this is not the belief. We have learned through serum tests that a syphilitic remains immune to further infections just so long as he remains a syphilitic,—that is, so long as he carries the virus of lues in his body. When the virus and its toxins have disappeared, then the patient is radically cured, and his period of immunity has expired.

Mercury cannot be called an ideal agent, for it often happens that the human tissues are more sensitive to it than are the organisms of lues. Ehrlich realized this, and in developing salvarsan he attempted to produce a preparation which was a spirochetacide, but would not combine with the tissue cells. However, practically speaking, mercury performs great service. It has rarely ever failed to clean up the symptoms of lues, and its effect on the serum reactions is more lasting than that of the newer preparations.

The supply of salvarsan in this country is small, and before this war is over we may have to use mercury exclusively, so I shall briefly discuss the modes of administration of mercury.

*Inunctions.*—The mercury applied to the skin probably is taken up by the body in two ways: first, directly through the skin; and, secondly, it is undoubtedly volatilized to a degree and inhaled.

It is important when ordering rubs to produce

a good ointment, one in which the mercury is broken up into the finest particles possible. The usual scheme is to instruct the patient to rub 1 gm. of the 50 per cent ung. hyd., or its equivalent, into a different part of the body, best where there is no hair, as the flexor surfaces, each evening for six evenings. On the seventh evening the patient takes a hot bath, and visits the doctor. It is important that the rubbing should continue for at least twenty minutes by the watch, and that it be done in the evening, for the warmth of the bed undoubtedly favors evaporation, and the sleeping patient is surrounded by motionless air impregnated with mercury. The mouth and teeth should be cleansed t.i.d. with some  $\text{KCIO}_3$  preparation. It is best to curtail smoking, and any inflammation of the skin, pains in the legs, or other untoward symptoms should at once be reported to and seen by the doctor. The usual course of rubs numbers thirty,—that is, five weeks time is necessary.

*Injections.*—This is the ideal method. The dosage can be more readily adjusted. It is cleaner. It must be given by the physician; and therefore can be more closely watched. The pain of the injection at times causes the patient to object, but if the needle is kept sharp, if rigid aseptic rules are adhered to, so as to avoid infections, and the injections given only once or twice a week, the most sensitive patients will usually soon become accustomed to the slight pain of the administration.

Either soluble or insoluble preparations may be used. If insoluble, be sure and palpate the region of the last injection before a second one is made, for at times six or eight injections are made into the same region, the mercury becomes deposited, not absorbed, and, if suddenly liberated, the patient will suffer from acute mercurial poisoning. This, however, is not a frequent occurrence. Noguchi has estimated that when the usual dosage is used twelve injections equal thirty inunctions.

The soluble preparations have an advantage in that the dosage is more exactly known. They need not be given so frequently and therefore are not so irritating to the patient.

The internal administration of mercury through the mouth has just about fallen into disuse. At times it must be resorted to, but it is poorly borne by the intestinal tract. The amount actually absorbed is very hard to estimate, its effects on the serum reactions are so slight that they may be almost disregarded, and, further-



more, it does give the patient a false feeling of adequate treatment. In a large series of cases of tabes, general paresis, and C. S. lues, observed by a New York man, all of them who admitted previous clinical signs of lues told of courses of protiodide pills lasting from three months to two years, showing that though oral administration of mercury may control the symptoms of lues, still it will not eradicate the disease.

*The Iodides.*—For the past hundred years iodine, in some form or other, has been used in syphilis. Although its therapeutic effect is slow as compared with mercury and arsenic, still it is active and continued in its effect. First it must be remembered that iodine is not strictly speaking an antiluetic remedy. It is an alterative; and, although the iodides may be a great help in conjunction with the other remedies, still alone they will not stamp out the disease. Experimentally, it has been shown that iodine can kill spirochetes in animals, but the dose required is too large for humans.

Iodine can be administered in the form of the tincture, the sodium or potassium salts, or combined with iron, as the syrup of ferrous iodide. There is no doubt that iodine occupies a distinct field of its own in antisiphilic therapy, and so long as we are not sure of any single

remedy, we must look upon each remedy as an aid to the other, the one completing what the other has left undone, and for the benefit of the patient, there is no reason why all three should not be used. Many schemes using the triad of antiluetic remedies have been proposed. In primary infections it is quite agreed that several doses of salvarsan will usually wipe out the disease, still for safety the other remedies are administered. In secondary and tertiary infections a scheme similar to the following is often used: one intravenous salvarsan followed by a six weeks' course of mercury, either percutaneously or intramuscularly. The salvarsan is then repeated, and the patient is given iodides for six weeks. Then another salvarsan, and a rest for six weeks. This régime is repeated three times in a year, and the treatment is continued for two years. One author advises patients to continue iodides for six weeks at a time twice a year for the rest of their lives after they have been discharged.

Bacteriological examinations and serological tests of the blood and spinal fluid will probably be insisted upon in the future before a physician will be willing to pronounce a patient free from demonstrable symptoms of lues. The chronicity of the disease is surely established beyond a doubt.

## THE SPLENIC PATHOLOGY OF PERNICIOUS ANEMIA AND ALLIED CONDITIONS: A DUODENAL METHOD OF ESTIMATING HEMOLYSIS\*

By J. P. SCHNEIDER, M. D.

MINNEAPOLIS

The author in the first portion of above paper presented twelve photomicrographs, loaned by Eppinger, made from sections of spleen secured in an operative way, and prepared after the technique of Weidenreich, illustrative of the pathology found present in the above indicated hemolytic diseases.

The second portion of the paper dealt with work done in the Laboratory of Experimental Medicine. Using the duodenal secretions, the comparative worth of the blood-derived pig-

ments, bilirubin, urobilin, and urobilinogen, was studied in nineteen cases, including five cases of pernicious anemia. In the latter, without exception, spectroscopic values for the two last-named pigments were found to be enormous, varying directly as the stage of the disease,—highest in crisis and lowest in the intermission.

Bilirubin, determined by the Huppert method, always gave above normal values in pernicious anemia, whether in crisis or an intermission. This would indicate that there is a constant underlying pathologic hemolysis, while during a crisis the liver becomes secondarily incapacitated.

\*Abstract of a paper read before the Minnesota Pathological Society, April 20, 1915.

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### A CANCER CAMPAIGN—JULY, 1915

Some months ago the Medical Society of the State of Pennsylvania began a cancer campaign among physicians, the purpose of which is to make them eternally vigilant against a disease which has so terrorized a large percentage of its victims that they often conceal its early symptoms, even when positively known to them.

The ravages of cancer must be checked; and there is no check except that of *early diagnosis* and *early treatment*.

The month of July, 1915, is destined to be an epoch-making period in the history of cancer; for, at the suggestion of the Pennsylvania Society, the leading medical journals of America will devote special attention to the subject and a large number of medical societies and kindred organizations will discuss it during July.

At the request of the above-named Society we publish in this issue of THE JOURNAL-LANCET a paper by Dr. Edward A. Weiss, which was prepared at the request of the cancer committee of the Society, and which will be published in three other medical journals, whose circulations cover, respectively, the East, the South, and the Pacific Coast. This paper deals with the important phase

of the subject which appeals particularly to the family physician.

We also give our readers the excellent paper read by Dr. W. J. Mayo before the Minnesota State Medical Association, and a special paper by Dr. D. C. Balfour, of the Mayo Clinic.

### CANCER: AN ARGUMENT FOR PHYSICAL EXAMINATION OF ADULTS AT FREQUENT INTERVALS

Cancer is the latest of the great causes of death in Minnesota to attract marked public attention. Its real place in the perspective of human society is therefore well worthy of some care in definition, and especially so since that position shows little signs of shifting, albeit the prevalence of cancer in the population is rapidly increasing. We no longer confront a situation of this kind with despair or even with stolidity. We have learned that disease is not some inevitable burden, to be tinkered with, but that, in many forms, it can be abolished or, at least, shrewdly circumvented. In cancer the method of control is already well understood. That stage is past. Our immediate task is now to plan, and then to carry out, the procedures we quite well appreciate are needed.

Prevention, as we ordinarily understand it, is not yet practicable in cancer, for prevention means interfering with the natural history of a disease before it becomes established in the body. True, by removal of tumors in precancerous stages, as Keene advises, we may obviate the development of cancer altogether. Unquestionably, this is the ultimate ideal to hold before us. But, practically and for immediate purposes, we must recognize that cancers come to us for the first time about an average of one year too late, and therefore already well developed in malignancy often in metastases. Our first effort therefore must be to shorten this fatal interval of delay.

Parallel with a propagandum to the public, urging early presentation of all tumors for diagnosis, there must be pushed forward dispensary or other similar services at which they may present themselves. Also and equally important, such work predicates physicians who will be capable through special training of approaching cancer diagnosis in early stages with conclusiveness. Each one of these three items is clearly for the medical profession to deal with.

The attention of physicians is already turned

to cancer as a social problem; but this is far from sufficient, although eminently essential as an early step. Especial "Tumor Departments" in all clinics, dispensaries, and hospitals, should be promptly organized. Nurses, especially visiting nurses, should be particularly instructed to watch for, and urge early operation on, any cancerous cases that they may encounter, and early diagnosis on all tumors. Cancer lends itself peculiarly to visiting-nurse work, because even in advanced cases, where hospitalization is indicated for the patient, the patient may remain safely at home, so far as other members of the family are concerned. In this particular, cancer parallels throughout its course tuberculosis in the non-open stages. Open tuberculosis must usually be removed from the family to prevent spread; advanced cases of cancer must often be removed, but chiefly for the sake of the patient.

Lest anyone should suppose that the cancer menace is exaggerated, we quote the Minnesota State Board of Health official statistics of death from cancer—about 1,400 in 1910 and about 1,700 in 1914—to show an increase of over 20 per cent in four years, without a break-back in any year. Prophecy is always dangerous; but, should this curve of increase continue, anyone can see that cancer will double itself in the next twenty years, and, if it does, it will then be almost 50 per cent higher than our present tuberculosis death-rate.

It would seem that, whatever measures be taken now, the near future will bring both profession and public face to face with the realization of the fact that annual, better semi-annual, physical examination for everyone, similar to that now carried out for children in the best developed forms of medical school-supervision, will be the best solution of the cancer problem, as it also undoubtedly will prove to be for the early discovery of incipient tuberculosis.

Propagandum work to the public rarely achieves its ends when directed wholly by those whom the public, rightly or wrongly, feel may be interested in the results. But the Minnesota Public Health Association has already begun the cancer propagandum in Minnesota; and, we believe, the medical profession can and should co-operate in its work, particularly in this direction.

### THE TOOTH-BRUSH

In a recent issue of the *Literary Digest* there was an abstract of an article from a dental jour-

nal, condemning the use of the tooth-brush. This article has caused more or less comment from various sources since that time, and has been used by exploiters of proprietary medicines to show that the tooth-brush can be kept absolutely sterile.

The claim is, that the bristles of the brush become almost irreparably infected after the first application to the mouth, and it is impossible, by any means, to sterilize it then. It is also claimed that the brush harbors germs of all kinds and of all grades, from the beginning to the end of each bristle; and this is on the grounds that the mouth is a cavity which is very easily infected and contains pathogenic germs all of the time and particularly so if the individual has pyorrhea in any form, and therefore the tooth-brush must naturally become more or less infected.

It is difficult, however, to tell which is really worse,—the mouth or the tooth-brush. If the mouth is infected primarily and the tooth-brush is new, the use of it for a reasonable time is not going to do very much damage. If the mouth is not infected, and the tooth-brush is uncared for, it is probably responsible for the invasion of some disease germs. This infection will hardly spread to any alarming extent, nor will it increase the sale of so-called antiseptic proprietary drugs.

It has been suggested that we may be obliged to return to the Japanese custom of caring for the teeth, namely, to rinse out the mouth with water, and rub the gums with the finger. But, when one takes into consideration the fact that 85 to 95 per cent of all individuals have more or less pyorrhea, it seems almost impossible to realize that the mouth can be constantly sterile.

For some time it was thought that the teeth could be best cleaned with floss silk passed between the teeth after a meal, and then the mouth rinsed with water or some tooth-wash. It is very unlikely that this method will be universally employed, as it is only occasionally that one hears of a dentist even who uses this manner of cleaning his teeth; and, in passing, we may ask why is it true that so many dentists have poor teeth? Probably for the same reason that so many doctors are themselves sick, and so many shoe-men fail to supply their families with new shoes. However, the man who will always carry a silk floss, and buy a new tooth-brush every day, will probably be the only one who will keep his mouth in good order.



## MISCELLANY

### MEMORIAL TO DR. ABRAHAM BARKER CATES

The Administrative Board of the Medical School of the University of Minnesota, in special session on June 12, 1915, records with sorrow the death of Dr. Abraham Barker Cates.

In the name of the entire faculty, its members desire to express their personal rather than their official appreciation of a loss which is measured by the sterling worth of one who has been a friend of many and a trusted fellow worker of all.

His loyalty to the friends who trusted him, his faithfulness to every trust reposed in him, his unfailing courtesy and consideration toward others, his untiring industry alike in teaching and in practice, his high-minded reserve under circumstances of difficulty and essential change, the inspiration he gave to the pupils he taught for so many years, were but the outward manifestations of character in him.

Like the rare Israelite of old, he was a man in whom there was no guile, a man of intrinsic righteousness of thought and act. He was the embodiment of personal and professional integrity. His own ethics were beyond the need and above the dictum of any ethical code. Young men trusted him; old men counselled with him; patients unreservedly placed themselves in his hands; students sat at his feet; and each with an intuitive faith that he was all that he seemed to be.

One of the last of the original faculty of the Medical School, he has rendered to it many years of but partially rewarded service, in which he has given in full and generous measure of his rare gifts as a teacher.

The faculty orders this memorial inscribed upon its records and published in the daily and medical press. It asks the privilege of extending to the members of his bereaved family its sincere sympathy and the assurance that it shares, both professionally and personally, in their sense of deep loss.

Signed,

ELLAS P. LYON, Dean,

RICHARD OLDING BEARD, Secretary.

## BOOK NOTICES

**LOCAL AND REGIONAL ANESTHESIA**, including Analgesia. By Carroll W. Allen, M. D., of Tulane University, New Orleans, with an introduction by Rudolph Matas, M. D., of Tulane University, New Orleans. Octavo of 625 pages with 255 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$6.00 net; half morocco, \$7.50 net.

Of the many works on local anesthesia which have recently appeared, Allen's work is probably the best of those originally written in English. It is quite complete, scientific, and well illustrated. Proper credit is given to Braun's work, which is the veritable fountain-head of the subject.

The medical men of this country have been slow to appreciate the possibilities of local anesthesia. The operator who resects a rib in empyema under general anesthesia is behind the times. Following a recent pneumonia, the practice becomes nearly criminal. This is an example of many. A careful study of Allen's work will give one an adequate basis for taking up the practice of local anesthesia. —STRACHAUER.

**ANOCI-ASSOCIATION**. By George W. Crile, M. D., Professor of Surgery, School of Medicine, Western Reserve University, Cleveland; and William E. Lower, M. D., Associate Professor of Genito-Urinary Surgery, School of Medicine, Western Reserve University, Cleveland. Octavo of 259 pages, with original illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$3.00 net.

This most interesting book of two hundred and fifty pages should be read and carefully studied by every surgeon. It consists of two parts.

Part I gives—

- (a) Statement of the kinetic theory of shock.
- (b) The principle of anoci-association.
- (c) Summary of experiments performed.

Crile states that shock is the result of the excessive conversion of potential into kinetic energy in response to adequate stimuli.

The essential lesions occur in the cells of the brain, the suprarenals, and the liver. Many experiments tend to show, first, a hyperchromatic and, then, a hypochromatic stage in the brain cells, due to overstimulation. These chromatic changes were demonstrated by various English observers about fifteen years ago.

The author further states that the motor mechanism of a patient under inhalation anesthesia may be driven even more powerfully (than that of an athlete), though in silence, throughout the course of a surgical operation. The manner of proof of the above statement is not apparent.

In Chapter IV the kinetic theory of shock is admirably summarized in a single page, and is worthy of careful study.

Part II deals with the treatment of shock and its prevention through anoci-association.

Here the author emphasizes the delicate and gentle handling of the tissues; sharp, accurate dissection; and complete hemostasis. He further bespeaks for the patient tactful, gracious, considerate, reassuring treat-

ment at the hands of the surgeon, the interne, and the nurse. No detail in the treatment is too trivial to receive the surgeon's personal attention. The wide application of anoci-association is shown to traumatic surgery, operations on the extremities, and numerous conditions of the head, neck, and abdomen.

Exception will be taken to Crile's position on the removal of the appendix, for he says in abscessed conditions it should be removed only "if it be found at once; if not found readily, then its removal should be left for a second operation after the abscess has completely healed."

An appendix is added, in which Agatha Hodgins, Chief Anesthetist at Lakeside Hospital, contributes a chapter on "The Technic of Administering Nitrous-Oxid-Oxygen Anesthesia"; and A. R. Warner, M. D., describes "The Hospital Plant for the Manufacture of Nitrous Oxid as used at Lakeside."

The application of anoci-association has not been followed by the same brilliant results in the hands of some surgeons who have used it as those reported by Dr. Crile. This book, however, is most interesting, stimulative, and suggestive, and is deserving of the most careful study.

It is unfair to deny its value, or to endorse it without a conscientious, thorough trial. The volume is profusely illustrated.

—HARE.

INFECTION, IMMUNITY, AND SPECIFIC THERAPY, with Special Reference to Immunological Technic. By John A. Kolmer, M. D., Ph. D., Instructor of Experimental Pathology, University of Pennsylvania, with an introduction by Allen J. Smith, M. D., Professor of Pathology, University of Pennsylvania. Octavo of 899 pages; 143 original illustrations, 43 in colors. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$6.00; morocco, \$7.50 net.

This is a very valuable and complete work on the subject of infection with special reference to the vaccine and serological treatments of the same. This book is divided into five parts as follows:

Part I. General Immunologic Technic. This treats of general laboratory technic,—the mechanical side of the question, the apparatus necessary, the obtaining of materials to work with, inoculation of animals, immunization of animals, preparation and preservation of serums.

Part II. The Principles of Infection. This gives a general discussion of the relation of infection to immunity,—the production of immune bodies and of toxins with the resulting production of disease.

Part III. The Principles of Immunity and Special Immunological Technic. This is especially a valuable portion of the book giving in reasonable and understandable detail, the technic of opsonic index, preparation of bacterial vaccines, antitoxins, agglutinins, precipitins, cytolsins, bacterialsins, hemolysins, etc. The subject of complement fixation-tests is taken up in detail, especially the Wassermann syphilis reaction and its modifications. The practical value of this test is carefully and clearly indicated, especially in regard to the effect of treatment and in regard to clinical interpretation of the reaction. The complement fixation tests for other diseases are clearly and simply given, together with their apparent and practical values.

An intelligent chapter is devoted to the difficult and puzzling subject of anaphylaxis.

Part IV. Applied Immunity in Prophylaxis, Diagnosis, and Treatment of Disease—Specific Therapy. Under this head are discussed the tuberculin reactions, and active and passive immunizations by bacterial vaccines and serums. Then each disease so treated is taken up, giving methods, results, and conclusions. One very interesting chapter is devoted to chemotherapy, especially salvarsan and neosalvarsan, with methods of administration, contra-indications, precautions, and values of the treatment.

Part V. Experimental Immunological Exercises for Students. This gives a very complete course of study for those desiring to perfect themselves in immunological reactions.

The book, as a whole, is a very readable one. The language is clear, and it is free from the dry technical phraseology we sometimes meet with in text-books of this nature. The principles are so clearly stated, the technic so plainly indicated, and the applications and practical values are so carefully estimated that the book is not only a very valuable one for the specially trained laboratory worker, who, from time to time, wishes to get some practical technical information, but is also very valuable to the general student of medicine who may wish to obtain some practical knowledge of applied immunity problems in the treatment of infectious diseases.

—DRAKE.

## REPORTS OF SOCIETIES

### MINNESOTA NEUROLOGICAL SOCIETY

The regular meeting of the Society was held at the Minnesota Club, St. Paul, May 17, 1915.

The following officers were elected for the coming year: president, Dr. H. W. Jones; vice-president, Dr. A. W. Dunning; secretary-treasurer, Dr. A. W. Morrison.

The program was as follows: Dr. A. C. Rogers gave a talk on the work at the "Minnesota School for Feeble-Minded and Colony for Epileptics." Dr. R. M. Phelps discussed "Insanity Considered as a Constitutional Condition." There follows an abstract of this:

The present discussion aims to bring forward a contrast between my growing impression of insanity as a constitutional outgrowth, and the Freud theory, which may seemingly be called psychogenetic. As a psychology, and in pathological aspect, Freud's theory seems to predicate an energy in ideas or experiences, while the main thought has been to predicate this causative energy in brain conditions. The one seems to make an "immaterial" cause, the other a "material" cause. It is true, Freud associates an "instinct"—the sexual instinct,—but the energy is pictured as from the idea or experience, the instinct being common to all. It is the "complex" isolated by "repression" of a sensor, or conflicting with op-

posing "complexes," that is pictured as being an active cause of delusions, hallucinations, or imperative ideas.

Moreover, these "complexes" are pictured as "subconscious," as among the wholly forgotten experiences of past life, even of infant life. These lie below like an abscess, striving for surface expression. Becoming isolated or dissociated, they do not respond to other reasons (complexes), and may become delusional. Hypnotism, or dreams, or usually "sublimation" or "symbolization" may give hint as to them. These symbols are "interpreted," and the freedom of interpretation is often wonderful. The phrase "intellectual soapsuds" has been applied.

Twenty-five years ago, in almost every case of insanity among women a sexual disease cause was looked for. The present phase of thought brings this strongly to mind.

The main argument against this is the one from analogy. If general paresis, senile cases, traumatism, delirium tremens, tipsy states, and imbecility, be admitted as due to brain conditions, then it carries a strong proof that the rest are also.

Heredity is a sure cause. Six toes because the father had the same is a usual example. The far overpowering proof, is the fact that nearly everyone has five toes, and all sorts of minute subdivisions in regular form. Not that heredity produces "actualities" or "identities," but only that it is a force, or trend, trying toward a type. Heredity might be defined as always a "predisposition." Heredity of eugenics in imbecility is a "trend" or "strain" trying for a less perfect form.

It is not strange that a sexual idea can be unearthed by forced symbolization. All have sexual instincts, and the defective are apt to have them in queer forms.

Dr. A. S. Hamilton presented pathological specimens from a case of chronic lenticular disease.

A. W. MORRISON, M. D.

## NEWS ITEMS

Dr. E. D. Quinnell, of Ortonville, has moved to Sisseton, S. D.

Dr. J. G. Carney, of Armour, S. D., has located in Parkston, S. D.

Dr. S. G. Larrabee, of Braddock, N. D., is to locate in Mandan, N. D.

Dr. O. A. Burton has returned to Albert Lea from Bryn Mawr, Penn.

Dr. F. R. Castles has left Dallas, S. D., and located in Moravia, Iowa.

Dr. F. C. Soper, formerly of Medina, N. D., has located in Kathryn, N. D.

Todd and Wadena Counties have united to build a tuberculosis sanatorium.

Aitkin and Crow Wing Counties will unite in establishing a tuberculosis sanatorium.

Dr. C. M. Long has returned to Osakis from a three months' trip on the Pacific Coast.

Dr. Charles A. Manahan, of Center Point, Iowa, has moved to Brownsdale, Minn.

Dr. J. E. Nyquist, a physician of Cloquet for more than ten years, has moved to Duluth.

Dr. C. A. Homan, of Aberdeen, S. D., has left for the Pacific Coast for an indefinite time.

Dr. W. P. Lee, of Northfield, is spending several months in postgraduate work at Harvard.

Dr. J. C. Staley has returned to St. Paul after spending six months in Europe in the war zone.

Dr. R. T. La Vake, of Minneapolis, announces that his practice hereafter will be limited to obstetrics.

Dr. C. F. Brooks, of Platte, S. D., was married on June 8th to Miss Esther Brooks, of the same place.

Dr. W. L. Burnap has left Pelican Rapids, and gone into partnership with Dr. A. C. Baker at Fergus Falls.

Dr. J. C. Koch, of Blackduck, was married June 10th to Miss Gladys Weingart, of Des Moines, Iowa.

Dr. Frank E. Weed, of Lankin, N. D., was married June 16th to Miss Hortense Spain, of Conway, N. D.

Dr. H. E. Robertson, of the University, who has been doing laboratory work in Berlin for the past year, has returned.

Dr. R. J. Church has returned to Park River, N. D., having spent two months in postgraduate work in New York City.

Dr. John T. Rose, of Lakefield, was married on June 15th to Miss Elsie Frees, of that place. Dr. Rose will move to San Benito, Texas.

Dr. F. W. Briggs, formerly of Hendrum, has completed several months' postgraduate work in the east, and is now located at Moorhead.

Dr. R. D. Zimbeck, formerly of Montevideo,



has taken the practice of Dr. J. W. Helland, of Maynard. Dr. Helland is to take an extended vacation.

Dr. C. J. Goodheart, of Finley, N. D., is to take up Red Cross work in France. Dr. T. J. Glasscock, of Hillrose, Col., has taken his place in Finley.

In the previous issue we stated that Dr. G. D. Murphy, of Murdock, had located in Montana. Dr. Murphy has gone to Keeline, Wyoming, instead of to Montana.

Dr. Ida J. Brooks, of Little Rock, Ark., has been selected as resident physician of the Maternity Hospital, Minneapolis, succeeding the late Dr. Martha G. Ripley.

Dr. A. A. Conley, a graduate of the Medical Department of the University of Minnesota, is practising medicine with his father, Dr. A. T. Conley, at Cannon Falls.

Dr. Archibald MacLaren, of St. Paul, was elected one of the two vice-presidents of the American Surgical Association at its annual meeting in Rochester last month.

Dr. A. B. Ancker, superintendent of the St. Paul City Hospital, has obtained Dr. C. H. Pelton, a graduate of Johns Hopkins, as an assistant, so that at all times there will be a chief at the hospital.

Dr. Martin Kranz, of Mandan, N. D., was married last month at Terre Haute, Ind., to Miss Bena Hess, formerly of Glen Ullin, N. D. Dr. and Mrs. Kranz went to Boston, where Dr. Kranz took some special medical work.

Dr. A. B. Cates, who had practiced medicine in Minneapolis for over thirty years, died last month. The resolutions of respect passed by the faculty of the Medical School of the University, of which he had been a member for many years, appear on another page of this issue.

The vacancy caused by the resignation of Dr. Charles Lyman Greene as chief of the Department of Medicine of the Medical School of the State University, has been filled, temporarily, by the election of a committee of three,—Drs. S. Marx White, A. S. Hamilton, and J. P. Sedgwick.

The Administrative Board of the Medical School of the University of Minnesota has limited the number to be admitted to the next freshman class to eighty. As the number of applicants practically already exceeds that number, it will be necessary to base the selection of candidates upon their fitness.

Thomas Hospital, of Minneapolis, has treated 1,020 patients, 350 of whom were charity patients, in the past five years. The United Church Hospital Association, which manages Thomas Hospital, has just laid the cornerstone of the new 150-bed Fairview Hospital which is to be run in connection with Thomas Hospital.

The American Surgical Association held its annual meeting in Rochester last month. Resolutions approving the Mayo affiliation were unanimously adopted. The members of the Association visited the Twin Cities and returned to Rochester on the launch of the Drs. Mayo. They then went to San Francisco by special train.

Dr. C. P. Dutton, City Physician of Minneapolis, has been removed from office, whether for the faithful or the unfaithful performance of duty, only the politicians know. When the health of men, women, and children is made subordinate to the appointment or dismissal of a stenographer, things have come to a sad pass, as they seem to have come in Minneapolis.

The Minneapolis General Electric Co. again offers its free fan-service in every Minneapolis sick-room when the family is unable to pay for it. When necessary free service-wires will be run to the house and room, and a fan loaned until no longer needed. It is the wish of the Company that this offer be freely accepted by physicians for their needy patients.

Four more members of the faculty of the University Medical School have resigned because of the trouble growing out of the Mayo affiliation plan, as follows: Drs. J. E. Hynes, instructor in the Department of Medicine; J. S. Gilfillan, assistant professor of medicine; John L. Rothrock, assistant professor of gynecology; and Charles D. Freeman, instructor in dermatology and genito-urinary diseases.

The fifth semi-annual session of the Northwestern Oph-Lar-Rhin-Otic Society will be held Tuesday evening at Sioux Falls, July 29th, at Hotel Carpenter. Members will gather for supper at 6 p. m., and the program will begin at 7 p. m. A fine program will be presented as follows: "Lacrimal Obstruction," Dr. E. D. Putnam, Sioux Falls; "Eye Symptoms of Chronic Sinusitis," Dr. J. E. Reed, r. Sioux City; "Corneoscleral Trephining in Glaucoma," Dr. G. F. Suker, Chicago; "Brain Abscess," Dr. R. D. Alway, Aberdeen. This Society is made up of the men especially interested in eye, ear, nose, and throat work in the four states of Minnesota, South Dakota, Iowa, and Nebraska. This meet-

ing is held the night before the two days' session of the Sioux Valley Medical Association.

The Southern Minnesota Medical Association will hold its mid-summer meeting at Red Wing on August 3d and 4th. The Goodhue County Society will entertain the Association, giving a banquet on the evening of the 3d. The Ladies' Auxiliary of the Goodhue Society will entertain all visiting ladies. The following is the program of the meeting: "The Medical Staff and Interne in Hospital Service," by Dr. J. G. Cross, Minneapolis; "Some Modern Phases of Neural Surgery," by Dr. Arthur A. Law, Minneapolis; "Some Conditions Encountered During Pregnancy," by Dr. Chas. C. Allen, Austin; "Hodgkin's Disease," by Dr. S. B. Haessly, Faribault; "The Litigation Spine," by Dr. Arthur A. Sweeney, St. Paul; "Essentials in Clinical Diagnosis," by Dr. R. C. Hunt, Fairmont; "Scurvy in Children," by Dr. J. T. Christison, St. Paul; "Abdominal Pains and Their Significance With Reference to Diagnosis," by Dr. M. H. Cremer, Red Wing; "Mouth Infections and Their Relation to Human Health," by Dr. Thomas B. Hartzell, Minneapolis; "The Relation of Amebiasis to Pyorrhea Alveolaria," by Dr. A. H. Sanford, Rochester. All trains will be met by automobiles, which will be at the disposal of the delegates and their ladies. Hotel accommodations will be provided by application to Dr. H. T. McGuigan, Chairman Committee on Entertainment, Red Wing; and arrangements will be made to care for automobiles of delegates. Drs. W. J. and C. H. Mayo have arranged for an excursion in their Oronoco on the Mississippi. All physicians, whether members of the Southern Minnesota Medical Association or not, are earnestly requested to take their ladies to this meeting and have them enjoy the entertainments that will be given.

#### WANTED

By an experienced physician, locum tenens work, or will purchase mopped or lightly opposed practice. Address 235, care of this office.

#### POSITION OPEN

In first-class town in Northern Minnesota for both a physician and a druggist. Scandinavian preferred. Address 230, care of this office.

#### OFFICE WANTED

Physician wishes to rent offices with other physicians or dentist in a down-town office building in Minneapolis. Address 234, care of this office.

#### OFFICE HOURS FOR SALE.

Wanted.—A physician to share morning and afternoon hours with me in my office in the Andrus Building, Minneapolis. Address No. 227, care of this office.

#### POSITION WANTED

By a young lady nineteen years of age, as assistant in physician's office. Have had experience. Can give best of references. Need a position very badly. Call N. W. Phone, South 175.

#### BEST CITY LOCATION

For a young doctor. Modern corner building; steam heat; electric lights; janitor service; two dentists in building; reasonable rent. Come and see for yourself. A. E. Simms, 331 14th Avenue S. E., Minneapolis, Minn.

#### X-RAY COIL FOR SALE

Victor No. 1 Portable Coil for either 220- or 110-volt current, practically new, with tube, fluoroscope and screen. Will sacrifice at \$140.00 for cash. Address 229, care of this office.

#### LOCUM TENENS WANTED

Experienced physician and surgeon wishes locum tenens in, or very near, the Twin Cities for six months or a year. Have money to purchase if mutually agreeable. Very ethical. Speak German and Scandinavian languages. Would like assistantship with busy surgeon. Address 232, care of this office.

#### ASSISTANT WANTED

Wish an assistant at once in a general and hospital practice in Minnesota. Good proposition for a competent and energetic man. German and married man preferred. This is an exceptional proposition to one capable in surgical work. Address 238, care of this office.

#### PRACTICE WANTED

A general medical practice in a town of from 1,500 up, paying not less than \$3,500 cash, with a chance to do eye, ear, nose, and throat work and general surgery. Would like to get into Alexandria, Glenwood, Detroit Lake, Redwood Falls, or some other town of equal importance. Address 236, care of this office.

#### PRACTICE WANTED

Doctor thirty-five years old, married, a protestant, Mason, and Elk; good mixer, wishes a place in Minnesota or adjoining state. Has North Dakota, Missouri, and Idaho licenses. Would accept a locum tenens, assistantship, partnership, or any other good chance to get back and get busy. Address 237, care of this office.

#### PRACTICE FOR SALE

One of the best locations in South Dakota. Growing city of two thousand population; one other physician; railroad division point; new, strictly modern, ten-room house in good location. Practice goes with sale of property; one-third cash will handle deal. No blue sky about this. It is a first-class opportunity. I have other interests, and want to sell. Address 226, care of this office.



# The Battle Creek Method of Treating Cases of Drug Addiction

**Alcohol, Opium, Cocaine, Tobacco and Other Drug Habits**

The Battle Creek Sanitarium is not an inebriate asylum. Cases requiring physical restraint or likely to disturb other patients are not received. For a large class of intelligent persons who have through suffering become entangled in the toils of a drug habit and who are ready to co-operate with a rational effort to deliver them from the drug and from its effects the Battle Creek Sanitarium Method offers a rational, safe and remarkably comfortable means of relief and without publicity.

This is not a drug method. Drug methods often leave the patient's nervous system shattered and his condition so wretched that he is very liable soon to drift back into the old habit.

There are no tricks of hypnotism or "suggestion" in the Battle Creek Method. The rational and physiologic means employed not only remove the craving for the drug but deliver the patient from the pain or neurasthenic miseries to relieve which the drug was first used, and if faithfully employed finally reinstate the patient by removing the morbid effects resulting from the use of the drug.

A fuller account of the Battle Creek Sanitarium Method of treating drug addiction in its various forms will be sent on receipt of the attached coupon.

**The Battle Creek Sanitarium, Battle Creek, Mich.**

Box 350

**The  
SANITARIUM,  
Battle Creek,  
Michigan.**

Please send to the undersigned full information concerning the Battle Creek Method of treating cases of drug addiction.

Dr.....

Street .....

City .....

State .....



## PUBLISHER'S DEPARTMENT

### THE IDEAL ELECTRIC SUPPLY CO.

The above company, of 299 Broadway, New York City, offers an electrical illuminating outfit, with all attachments, at the very low price of \$3.50. Their card appears on another page, and will be read with interest by both the general practitioner and the eye, ear, nose, and throat specialists.

### BEEBE BIOLOGICAL LABORATORIES

The rapid growth of the Beebe Laboratories, made possible only by the constantly increasing confidence and patronage, first, of the leading physicians of St. Paul, and, then, of the medical men of the Northwest, is a high compliment to Dr. W. L. Beebe, their director.

These laboratories are useful to any physician who does not do all of his own laboratory work, and there are few who do.

### THE LUNG MOTOR

The high value as a life-saving device of the Lungmotor, was recognized last month at the Panama-Pacific Exposition. It was awarded gold medals by the Mining Jury and by the Liberal Arts Jury.

The daily papers of the country, in their regular press dispatches, give almost continuous testimony to the Lungmotor for its efficiency in saving lives that would have been lost except for its use in the restoration of such lives after accidents of all kinds.

The Life Saving Devices Co., 180 North Market St., Chicago, will be glad to send any physician a copy of their pamphlet, "Mechanical Respiration." When Bellevue Hospital deems it wise to purchase eight of these life-saving instruments, we may take notice of the efficiency of such an instrument.

### THE KENILWORTH SANITARIUM

The medical director of the Kenilworth Sanitarium maintains that sound-proof rooms with forced ventilation are well-nigh indispensable to the proper treatment of certain cases of the acute psychoses. For patients who cannot properly go out of doors they insure a constant and adequate supply of fresh air, and relieve the physician from the obligation of administering sedatives to them out of consideration for others.

Another essential resource of treatment supplied by this institution consists of the very liberal supply of nurses and attendants provided. The proportion of day nurses equals the number of patients, while an adequate and independent night nursing service is maintained. The furnishings, cuisine, and attendance are first class; and the grounds, consisting of ten acres, are handsomely laid out and parked.

The management may be pardoned for inviting the inspection of possible patrons.

### BATTLE CREEK SANITARIUM

It is coming to be admitted that invalids are too much indoors and that relaxation in the open air, even though no exercise is taken, is extremely beneficial.

At the Battle Creek Sanitarium two immense outdoor gymnasiums are maintained for the purpose of luring

semi-invalids into the open. Separate gymnasiums being maintained for men and women, it is possible to disregard the conventional dress and really get back to Nature.

Swimming-pools, volley-ball courts, sand-baths, and just plain, every-day basking in the sun are some of the joys experienced in these gymnasiums. Patients who go to the sanitarium during the summer frequently become tanned as brown as Indians, and go home with almost the vim and endurance of the original Americans.

Trained instructors are in attendance at these gymnasiums, in order that the exercises and play of the patients may be directed along correct hygienic lines. Slight restriction is placed upon the patients, however, and they are permitted to enjoy the pastime which most thoroughly absorbs them between treatments.

### A NEW X-RAY TUBE

Mr. H. Clyde Snook, more than any other individual, has developed and standardized the production of X-Rays and compelled improvement of all other generators. His success in this line has been acknowledged by a host of imitators, to the advantage of the science of medicine.

Having accomplished this, better tubes were imperatively needed, hence it was most natural that his attention should be directed to the improvement of tubes; and again the profession has gained by the results of his labors and by perfecting the "Snook Hydrogen Tube" he has overcome the troublesome conditions which frequently baffle the röntgenologist. It is, therefore, no longer necessary to bother with "cranky tubes." The Snook Hydrogen tube gives greater penetration, higher efficiency, greater flexibility and durability, and more nearly uniform results.

The reputation of the originator, of the manufacturer, and of Noyes Bros. & Cutler, the Northwestern agents, assures the dependability of this new tube.

### THE ABBOTT ALKALOIDAL COMPANY CHANGES ITS NAME

The Abbott Alkaloidal Company has issued the following important and significant statement:

Owing to the rapid expansion and broad generalization of its business as manufacturing and importing chemists, The Abbott Alkaloidal Company has deemed it expedient to change its incorporate name to The Abbott Laboratories, and has done so. No change in personnel or policies. Our business is to serve the professions, through the general channels of trade, or direct (at the most convenient point) as best serves their convenience. Price list on request.

For a number of years this company has been broadening out and enlarging the scope of its activities. As most readers of this journal will remember, some four or five years ago it entered the biologic field and now puts out a full line of serums, antitoxins, vaccines, and similar products, both for human and veterinary practice. Also, it is engaged in the manufacture of pure chemicals and is constantly adding to its already large line of pharmaceutical products, many of which are not distinctively alkaloidal.

It is only fitting and proper, therefore, that a name should be adopted, which is broad enough to cover all the activities of this progressive, up-to-date American enterprise.

# THE JOURNAL-LANCET

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and Official Organ of the  
North Dakota and South Dakota State Medical Associations

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No. 14

## TRANSACTIONS OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION—THIRTY-FOURTH ANNUAL MEETING, 1915

### OFFICERS AND COMMITTEES

#### PRESIDENT

JAMES B. VAUGHAN, M. D. .... Castlewood

#### FIRST VICE-PRESIDENT

FRANCIS M. CRAIN, M. D. .... Redfield

#### SECOND VICE-PRESIDENT

H. J. G. KOOBS, M. D. .... Scotland

#### SECRETARY-TREASURER

ROBERT D. ALWAY, M. D. .... Aberdeen

#### COUNCILOR—FIRST DISTRICT, AND PRESIDENT OF THE COUNCIL

WILLIAM EDWARDS, M. D. .... Bowdle

#### COUNCILOR—SECOND DISTRICT

LESLIE G. HILL, M. D. .... Watertown

#### COUNCILOR—THIRD DISTRICT

D. L. SCANLON, M. D. .... Volga

#### COUNCILOR—FOURTH DISTRICT, AND SECRETARY OF THE COUNCIL

HARRY T. KENNEY, M. D. .... Pierre

#### COUNCILOR—SIXTH DISTRICT

FREDERICK TREON, M. D. .... Chamberlain

#### COUNCILOR—SEVENTH DISTRICT

THOMAS J. BILLION, M. D. .... Sioux Falls

#### COUNCILOR—EIGHTH DISTRICT

JAMES ROANE, M. D. .... Yankton

#### COUNCILOR—NINTH DISTRICT

F. E. ASHCROFT, M. D. .... Deadwood

#### COUNCILOR—TENTH DISTRICT

HAMPTON R. KENASTON, M. D. .... Bonesteel

#### MEMBER OF HOUSE OF DELEGATES, AMERICAN MEDICAL ASSOCIATION

LESLIE G. HILL, M. D. .... Watertown

#### ALTERNATE

SILAS M. HOHF, M. D. .... Yankton

### Proceedings of the House of Delegates

#### FIRST SESSION—TUESDAY, MAY 18TH

The House of Delegates met at the Elks Hall, Sioux Falls, at 2:30 P. M., Tuesday, May 18, 1915.

On roll-call the following responded:

Dr. Frederick Treon, Chamberlain, President; Dr. F. M. Crain, Redfield; Dr. C. S. O'Toole, Watertown; Dr. N. J. Nessa, Sioux Falls; Dr. C. M. Keeling, Springfield; Dr. R. P. Frink, Wagner; Dr. H. T. Kenney, Pierre; Dr. L. G. Hill, Watertown; Dr. H. R. Kenaston, Bonesteel; Dr. R. D. Alway, Aberdeen, Secretary.

The Secretary presented his report as follows:

#### REPORT OF SECRETARY-TREASURER

To the President and House of Delegates of the South Dakota State Medical Association:

Pursuant to the resolution adopted at Watertown, the adjourned meeting of the House of Delegates met at Pierre, Feb. 2. On account of a bad storm prevailing throughout the State some of the Delegates were snow-bound and unable to make the trip. The following answered the roll-call: Dr. F. M. Crain, Redfield, Vice-President; Dr. H. T. Kenney, Pierre; Dr. D. L. Scanlon, Volga; Dr. H. H. Frudenberg, Madison; Dr. J. F. Adams, Aberdeen; Dr. C. S. Bobb, Mitchell; Dr. H. R. Kenaston, Bonesteel; Dr. R. D. Alway, Aberdeen; Drs. P. B. Jenkins, Waubay, and E. C. Miller, Brookings, members of Legislative Committee; and also Drs. L. C. Mead, Yankton; F. W. Bilger, Ardmore; and Port McWhorter, Miller. The President, Dr. Treon, of Chamberlain, and Dr. G. A. Clauser, of Bridge-water arrived on a belated train at 5 P. M.

The first bill up for discussion was House Bill, No. 145, a bill to license chiropractors. The discussion was opened by Dr. E. C. Miller, who was followed by all the physicians present.

It was moved by Dr. C. S. Bobb, and carried, that the Secretary be instructed to employ A. W. Campbell, Aberdeen, to lobby against the bill, and it was agreed that the District Societies should be asked for money to defray this expense.

The following Societies have contributed the amount set opposite their names:

Aberdeen District.....	\$50.00
Brookings District.....	25.00
Yankton District.....	25.00
Watertown District.....	25.00
Mitchell District.....	25.00
Sioux Falls District.....	25.00

Total .....\$175.00

The other Societies did not respond. Mr. Campbell's bill for expenses and salary was \$225.00, leaving a balance of \$50.00 still due him.

The Secretary of the State Board of Health presented two bills, the first one permitting counties to employ a full-time health officer. This bill was for the benefit of counties in which were located cities of 5,000 inhabitants and upward, and was recommended by the Delegates, the other bill was to amend the present health law permitting the granting of itinerant licenses for a fee of \$25.00. The object of this bill was to permit eye, ear, nose and throat specialists in the State to itinerate. The bill in the present form was not recommended, as it was feared that men of the stamp of Doran could, through the process of law, obtain a license to itinerate if the bill became a law.

It was moved and carried that the Vice-President appoint a committee to meet with the joint Public Health Committee of the Senate and House at 8 p. m., and that the Vice-President be one of the committee. The other members of the committee were Drs. L. C. Mead, Fred Treon, H. R. Kenaston, H. H. Frudenfeld, and J. F. Adams.

At this meeting the full-time health officer's bill was discussed; and some changes were made as to method of putting the same in force.

Dr. J. B. Jenkins presented an amendment to the health law increasing the salary of the Secretary; and the same was recommended by the joint committee. The first bill was defeated in the Legislature, and the second was killed in committee by request of Secretary Dr. Jenkins, as it was found that in all probability it would fail to pass.

In the afternoon the narcotic bill was discussed; but, as Dr. Bobb was unable to get a copy, it was impossible to pass on it intelligently, although it was the consensus of opinion that the Federal law placed all the restrictions around narcotics that were necessary.

The meeting adjourned 4:30 p. m.

At the Watertown meeting Dr. J. L. Stewart, of Spearfish, was appointed organizer for this Association, and \$300.00 was appropriated to defray his expenses.

The doctor spent considerable time last fall trav-

eling over a greater part of the State, and secured about eighty applications, but how many became bona fide members I do not know, but I think very few, as our membership has not increased. I think had the doctor collected the membership fee at the time he took the application the result would have been different. His bill for expenses was \$215.00.

The American Medical Association is willing to place one or two men in the State to solicit Fellows for that Association, and at the same time solicit members for the District Societies under direction of the officers of these Societies, at an expense of \$1.00 for each bona fide member secured for the State Association.

It seems to me that this would be a good opportunity to increase our membership; at any rate we could not lose any money in the transaction.

The American Medical Association requests that we express our ideas in regard to an amendment to the constitution and by-laws in reference to the judicial power vested in the Judicial Council.

The membership of the Association is as follows: Aberdeen District, 79; Watertown District, 31; Brookings District, 25; Pierre District, 11; Mitchell District, 44; Sioux Falls District, 65; Yankton District, 50; Black Hills District, 24; Rosebud District, 8. Total, 337.

The terms of Councilors in Districts Nos. 3, 6 and 9 expire at this meeting; and it will be necessary to elect their successors.

Respectfully submitted,

R. D. ALWAY, M. D.,  
Secretary.

The President appointed the following committees:

Resolutions: Dr. F. E. Ashcroft, Deadwood; Dr. L. G. Hill, Watertown; Dr. R. P. Frink, Wagner.

Nominations: Dr. C. E. McCauley, Aberdeen; Dr. C. S. O'Toole, Watertown; Dr. D. L. Scanlon, Volga; Dr. H. T. Kenney, Pierre; Dr. C. S. Bobb, Mitchell; Dr. T. J. Billion, Sioux Falls; Dr. C. M. Keeling, Springfield; Dr. F. E. Ashcroft, Deadwood; Dr. H. R. Kenaston, Bonesteel.

Necrology: Dr. F. M. Crain, Redfield; Dr. N. J. Nessa, Sioux Falls; Dr. C. S. Bobb, Mitchell.

The House adjourned to the call of the President.

SECOND SESSION—WEDNESDAY, MAY 19, 6 P. M.

The House of Delegates was called to order by the President, Dr. Treon, with the following present:

Dr. Frederick Treon, Chamberlain; Dr. C. E. McCauley, Aberdeen; Dr. F. M. Crain, Redfield; Dr. C. S. O'Toole, Watertown; Dr. C. S. Bobb, Mitchell; Dr. H. B. Sherwood, Humboldt; Dr. N. J. Nessa, Sioux Falls; Dr. C. M. Keeling,



Springfield; Dr. R. P. Frink, Wagner; Dr. F. E. Ashcroft, Deadwood; Dr. H. T. Kenney, Pierre; Dr. D. L. Scanlon, Volga; Dr. H. R. Kenaston, Bonesteel; Dr. R. D. Alway, Aberdeen.

Dr. J. D. Parsons, chairman of the Committee on Health and Public Instruction, made the following report:

REPORT OF THE COMMITTEE ON HEALTH AND PUBLIC INSTRUCTION FOR THE YEAR  
ENDING MAY 15TH

To the President and House of Delegates of the South Dakota State Medical Association:

This Committee has not been able to hold any formal meetings since its appointment by the President, although your chairman has had the benefit of frequent counsel from Dr. Smedley, the other member of the Committee in Sioux Falls, and two conferences with Dr. Ashcroft.

The general plan of our work during the past year has been to direct our main efforts toward securing the co-operation of the more influential members of the laity with those of our own profession who feel the importance of educating the public along sanitary lines.

The arguments in favor of this work are so well understood that it is unnecessary to mention them here; but we feel that we ought to let no opportunity pass for urging upon the profession a more serious interest in the work as a part of the plain duty which they owe to society.

We have not received the response which should have come from the profession in boosting this work in our various districts, although we have nothing but the highest words of commendation for the efforts of those who have given us their assistance. We urged in our report a year ago that each district society carry out, so far as possible, the plan of giving to the public through the schools, churches, clubs, and other organizations, simple talks on the prevention of disease.

There is a curious diffidence on the part of many of the profession toward attempting this educational work. They fear either that the public does not care for such instruction, or that they themselves have not sufficient facility in public speaking. It is one of the principal functions of this committee to create a public demand for this instruction; and, if this is started, the profession should be ready to do its part.

With the idea in view of securing the interest of those who are influential in helping to create a popular demand for health talks, we have, during the past year, given special attention to addressing assemblies of students, teachers, and club women. During the summer a number of addresses were given at teachers' institutes and summer schools, dealing with the general topic of school hygiene, and with the conservation of vision. This latter work was greatly facilitated by the use of a set of stereopticon slides furnished by the A. M. A., whose Committee on the Conservation of Vision I have the honor to represent in this State.

A growing interest in our work has been noted

among teachers, and particularly among educators of prominence.

It is noteworthy that, while three years ago, at my own request, I was given a place on the program of the State Educational Association, and had the only place given to the consideration of health education, at the last session of the South Dakota Educational Association, there were no less than thirteen papers dealing with this and kindred subjects, including a special section on school hygiene, of which I was elected president, and which numbers among its members some of the most prominent educators of the State.

The same interest has developed among club women. Three years ago it required considerable effort to secure the opportunity to address the Federation of Women's Clubs. Last year a request was made for a speaker at an early date, and Dr. Ashcroft, who filled the appointment, was received by a large and attentive audience. I was asked a year in advance for an address for their next meeting to be held in the fall.

Numerous requests for addresses before local clubs have come in during the year, one of which I was able to fill, addressing a district federation meeting at Mitchell, where over a hundred representative club women were gathered, and showed great interest in our work.

Arrangements were made whereby we furnished speakers for a number of the short agricultural courses given by the staff of the farmers' institutes, several physicians responding to requests for talks.

Mention must be made of a strong ally which we have had in our work, in the Red Cross Seal Commission. This Commission, of which my colleague, Dr. Ashcroft, and Dr. Woodworth (of the State Sanitarium), and myself are members, has, under the able and energetic direction of its Chairman, Mrs. E. P. Wanzer, of Armour, done a remarkable work. Largely through the personal efforts of Mrs. Wanzer and her friends in the women's clubs over the State, the sales of the Red Cross Christmas Seals amounted to over \$3,300 last winter. Ninety per cent of this amount is being expended in educational work in the State through the agency of a Red Cross Seal nurse, who is spending a month in every county that sold \$100 worth of seals. While her work is primarily with tuberculosis cases the visiting nurse renders valuable service along general lines, her personal contact with the needy sick in their homes and with the schools and mothers' clubs, accomplishing things in the way of public-health education that could not be done otherwise.

To give an idea of what is being done I quote the following data from her report given me on her work in Minnehaha County: "Home visits, 119; visits to physicians, 49; visits to schools, 33; other visits, 59. Number of tuberculosis families visited, 21; number of babies, 18; lessons on hygiene and sanitation in schools, 39; mothers' meetings, 12; public meetings, 7."

So important are the results which are being secured in this phase of the work that I have given every possible assistance within my power to it, and have now under consideration a plan for expanding the Commission into what may be known as the

South Dakota Anti-Tuberculosis and Public Health Association. If this organization is perfected, it will enlist the support, both moral and financial, of a large number of influential laymen, and greatly increase our opportunities along all lines of public-health work.

It is important that we be prepared to render assistance when asked by the laity; and I would urge that the committees on health and public instruction in each district get to work early, and secure volunteers who will prepare talks suitable for popular audiences.

I would recommend that the following topics be covered: "The Prevention of Tuberculosis"; "Common Colds"; "Pneumonia"; "Care and Feeding of Infants"; "Medical Inspection of Schools."

I would also recommend the preparation of short timely articles on health topics for publication in local newspapers. The A. M. A. is furnishing ready-made editorials dealing with health problems to several thousand newspapers throughout the United States, so that the way is being paved for work of this kind by local physicians.

Some idea of the work which has been done during the past year may be gathered from the fact that the aggregate audiences reported total over 3,000. This includes the addresses given by Dr. Smedley and myself, of Sioux Falls; Dr. F. Conger Smith, of Yankton; Drs. Bower and Delany, of Mitchell; and Drs. Ashcroft and Martin, in the Black Hills. These lectures were given at institutes, summer-schools, women's clubs, mothers' clubs, churches, and colleges. No reports have been received regarding the talks given at the Short Agricultural Courses, but arrangements were made for sixteen appointments of this nature.

My own work included thirteen lectures with audiences totalling something over 1,600.

Mention should also be made of the educational influence of the Tuberculosis Exhibit of the Red Cross Seal Commission, which has been sent from place to place during the past year, from Deadwood to Canton.

Your Committee feels that the work accomplished has justified itself, and that the public are expecting even larger things from the profession, whose altruistic labors in their behalf they are beginning to appreciate.

Several engagements for lectures for the summer and fall have already been made, subject of course to the pleasure of the Association in continuing the services of this Committee.

The one hundred dollars appropriated for expenses involved in the work of this Committee has been expended substantially in two items of fifty dollars each, for traveling expenses and for stationery, postage, and stenographic work.

Respectfully submitted,

J. G. PARSONS, M. D.,  
Chairman.

Motion was made by Dr. C. S. Bobb and carried, that the report be adopted and the work continued.

The report of Dr. J. L. Stewart, of Custer, who

spent some time in organization work, was read and, on motion by Dr. Kenney, of Pierre, was accepted, and the doctor thanked for his efforts in securing membership.

#### REPORT OF THE STATE ORGANIZER

To the Officers and Members of the South Dakota State Medical Association:

As your state organizer I have the honor to report as follows: Number of applications for membership taken, 73; number of days spent in the work, 64; total expense, \$215.00; daily expense, \$3.36.

I did not spend the entire \$300.00 which was appropriated for this work, for the reason that after I had spent \$215.00 the rest of the work was so scattered that I did not believe the expenditure would be justifiable.

After receiving the appointment of state organizer I planned a campaign which was based on my ignorance rather than on knowledge of expenses in travel.

While planning the campaign I consulted several traveling men as to the necessary expenses per day. Their estimates ran from \$6.50 up, most of them agreeing that if I stayed on the road for thirty days on an expense account of \$300.00 I would do well.

I planned accordingly, figuring that I must visit the larger cities, and, in order to do so, I must leave out the smaller towns that contained only one physician each; also I must leave out the thinly settled part of the state west of the river.

This was a mistake, for my most effective work was done in the small towns. After I had discovered my mistake it was too late to go back over the same ground and visit the scattered towns that I had missed. Had I known that my expenses would be only \$3.36 per day I could have done more thorough work.

I make full confession of my blunder in the hope that it may benefit future organizers.

I hope that I did some good in harmonizing the profession in the larger cities, but as far as increasing our membership is concerned the expense incurred by visiting them was out of proportion to the results.

In addition to my regular duties I gave several public addresses in which I explained the attitude of the profession to the public and the beneficial results that would be realized by co-operation.

I wish to state that I was well received, and treated with the utmost courtesy by the physicians of the state, and that I enjoyed the work immensely.

Respectfully submitted,

J. L. STEWART, M. D., Organizer.

The amendment to the by-laws of the American Medical Association, in relation to defining the appellate power of the Judicial Council, was presented; and, after discussion, motion was made by Dr. N. J. Nessa, of Sioux Falls, and carried that our Delegate be instructed to vote in favor of the amendment.

House adjourned to Thursday, May 20th.

## THIRD SESSION—THURSDAY, MAY 20TH

The House of Delegates was called to order by Vice President Dr. F. M. Crain, of Redfield, with the following present:

Dr. F. M. Crain, Redfield; Dr. C. E. McCauley, Aberdeen; Dr. C. S. O'Toole, Watertown; Dr. N. J. Nessa, Sioux Falls; Dr. R. P. Frink, Wagner; Dr. F. E. Ashcroft, Deadwood; Dr. H. T. Kenney, Pierre; Dr. L. G. Hill, Watertown; Dr. L. D. Scanlon, Volga; Dr. T. L. Billion, Sioux Falls; Dr. H. R. Kenaston, Bonesteel; Dr. R. D. Alway, Aberdeen.

Moved by Dr. Ashcroft and carried that the following amendment to the by-laws, which was introduced at the last annual meeting, be adopted; motion carried.

## AMENDMENT TO BY-LAWS

*Resolved*, That Section 2 of Article 9 of the Constitution, be amended to read as follows:

The President and Vice-President shall be elected for terms of one year; the Secretary and Treasurer shall be elected for a term of three years; Councilors shall be elected for terms of three years each.

All these officers shall serve until their successors are elected and installed; provided that, should any Councilor fail to attend one or more meetings of the State Association, his office may be declared vacant, and a new Councilor elected, by the House of Delegates to fill said vacancy; provided, further, that, in the event of the death, resignation, or removal of any Councilor, his successor shall be appointed by the President of the State Association to serve until the ensuing meeting of the State Association, when the vacancy shall be filled in the manner hereinbefore provided; provided, further, that, in the event of the death, resignation, or removal of the Secretary and Treasurer, the Secretary of the Board of Councilors shall perform all the duties of the above-mentioned officer until the ensuing meeting of the State Association, and shall immediately take over and keep in his possession all money, books, papers and property appertaining to said office.

Motion was made by Dr. Hill and carried that the Secretary be instructed to co-operate with the American Medical Association in regard to increasing the membership of the State Association.

Dr. F. E. Ashcroft, chairman of the Committee on Resolutions, made the following report and moved its adoption. Motion carried.

## REPORT OF THE COMMITTEE ON RESOLUTIONS

To the South Dakota State Medical Association:

Your Committee on Resolutions begs leave to report the following: That the State Medical Association of South Dakota extend to the members of the Seventh District Medical Society and the physicians of Sioux Falls its sincere appreciation for their

hospitality, courtesies, and general good fellowship extended to us.

To Dr. Treon, our able President, we extend our expression of gratitude for the able manner of conducting the meeting and his good management of the administration for the past year. Special mention should be made of his scholarly and inspiring address. We will not soon forget his efforts in the preparation and delivery of this part of his duties.

We extend thanks to the Elks Club for the use of their rooms, and to the Ladies' Auxilliary for their splendid entertainment given us.

We desire to mention in a special way our thanks to the students and faculty of All Saints School for the splendid entertainment given us at the Hotel Carpenter. Sioux Falls and the State may well feel proud of such talent.

We wish to commend Dr. Alway, Secretary and Treasurer, for his work in keeping the business part of the Association in a prosperous condition.

Signed,

F. E. ASHCROFT, M. D.  
R. P. FRINK, M. D.  
L. G. HILL, M. D.

Dr. F. M. Crain read the report of the Committee on Necrology and moved its adoption; motion prevailed.

## REPORT OF THE COMMITTEE ON NECROLOGY

The Committee on Necrology regret to report three deaths occurring in our membership during the year.

Those who fell by the wayside while their work was unfinished are Dr. J. B. COMLEY, Doland; Dr. F. GYLLENHAMMAR, Gayville; and Dr. PATRIC J. WALDRON, Rapid City.

In the death of these members our Association has lost three active, honorable, and successful practitioners; the community in which they lived has lost respected and honored citizens; and their families have lost the love, the protection, and the companionship of husband and father.

Signed,

F. M. CRAIN, M. D.  
N. J. NESSA, M. D.  
C. S. BOBB, M. D.

Dr. C. E. McCauley, chairman of the Nominating Committee, made the following report, and moved its adoption, which was carried:

## REPORT OF THE NOMINATING COMMITTEE

President: Dr. J. B. Vaughn, Castlewood; Dr. F. E. Ashcroft, Deadwood; Dr. S. A. Brown, Sioux Falls.

First Vice-President: Dr. F. M. Crain, Redfield.  
Second Vice-President: Dr. H. G. Koobs, Scotland.

Councilors: Third District—Dr. D. L. Scanlon, Volga; Sixth District—Dr. Fred Treon, Chamberlain; Ninth District—Dr. F. E. Ashcroft, Deadwood.

Place of meeting for 1916: Yankton, Aberdeen, Deadwood.

The next order of business was the election



of officers. The chairman appointed as tellers Drs. O'Toole, Ashcroft, and Scanlon.

Dr. J. B. Vaughn, having received the most votes, was declared president for the ensuing year.

It was moved by Dr. Hill, and carried, that the rules be suspended and the Secretary be instructed to cast the ballot of the House for Dr. F. M. Crain for First Vice-President. The Secretary announced that he had so cast the ballot.

Motion was made, and carried, that the Secretary be instructed to cast the ballot of the House for Dr. A. G. Koobs, of Scotland, for Second Vice-President. The Secretary announced that he had cast the ballot for Dr. Koobs.

Motion was made and carried that the Secretary cast the ballot of the House for Drs. Scanlon, Volga; Treon, Chamberlain; and Ashcroft, Deadwood, Councilors for the ensuing three years. The Secretary announced that he had cast the ballot as directed.

The Chairman ordered the House to prepare their ballots for place of meeting.

Aberdeen having received a majority of votes, was declared to be the place for the next meeting of the Association.

House adjourned *sine die*.

## Proceedings of the Board of Councilors

### FIRST SESSION—TUESDAY, MAY 18TH

The Board of Councilors met at the Elks Hall, Sioux Falls, at 3:30 P. M., Tuesday, May 18, 1915. To the roll-call the following responded:

Dr. Fred Treon, Chamberlain, President; Dr. H. T. Kenney, Pierre; Dr. L. G. Hill, Watertown; Dr. H. R. Kenaston, Bonesteel; Dr. R. D. Alway, Aberdeen.

The Secretary presented his financial report; and the President appointed an auditing committee consisting of Dr. H. T. Kenney, Pierre; Dr. L. G. Hill, Watertown; Dr. H. R. Kenaston, Bonesteel.

### FINANCIAL REPORT OF THE SECRETARY-TREASURER

#### RECEIPTS

Balance on hand, May 28, 1914.....	\$1,018.68
June 16, 1914, per capita dues, Dist. No. 7....	3.00
June 22, 1914, per capita dues, Dist. No. 3....	6.00
July 15, 1914, per capita dues, Dist. No. 7....	3.00
July 28, 1914, per capita dues, Dist. No. 3....	3.00
Oct. 12, 1914, per capita dues, Dist. No. 8....	3.00
Dec. 6, 1914, per capita dues, Dist. No. 2....	6.00

Dec. 24, 1914, per capita dues, Dist. No. 4....	6.00
Jan. 5, 1915, per capita dues, Dist. No. 6....	6.00
Jan. 5, 1915, per capita dues, Dist. No. 4....	24.00
Jan. 31, 1915, per capita dues, Dist. No. 6....	12.00
Jan. 31, 1915, per capita dues, Dist. No. 6....	30.00
Feb. 4, 1915, per capita dues, Dist. No. 4....	6.00
April 1, 1915, per capita dues, Dist. No. 9....	72.00
April 1, 1915, per capita dues, Dist. No. 8....	150.00
April 2, 1915, per capita dues, Dist. No. 2....	75.00
April 6, 1915, per capita dues, Dist. No. 3....	69.00
April 12, 1915, per capita dues, Dist. No. 4....	3.00
April 21, 1915, per capita dues, Dist. No. 3....	3.00
April 25, 1915, per capita dues, Dist. No. 6....	90.00
May 3, 1915, per capita dues, Dist. No. 7....	129.00
May 5, 1915, per capita dues, Dist. No. 10....	24.00
May 6, 1915, per capita dues, Dist. No. 3....	3.00
May 6, 1915, per capita dues, Dist. No. 1....	237.00
May 7, 1915, per capita dues, Dist. No. 7....	15.00
May 12, 1915, per capita dues, Dist. No. 2....	15.00
May 15, 1915, per capita dues, Dist. No. 7....	3.00
May 15, 1915, per capita dues, Dist. No. 1....	3.00

Total .....\$2,017.68

#### DISBURSEMENTS

May 29, 1914, Warrant No. 8.....	\$ 50.00
May 29, 1914, Warrant No. 9.....	38.15
May 29, 1914, Warrant No. 10.....	150.00
June 6, 1914, Warrant No. 1.....	5.00
June 10, 1914, Warrant No. 2.....	100.00
June 20, 1914, Warrant No. 3.....	136.45
Aug. 9, 1914, Warrant No. 4.....	13.95
Nov. 3, 1914, Warrant No. 5.....	150.00
Dec. 22, 1914, Warrant No. 6.....	208.48
Jan. 18, 1915, Warrant No. 7.....	65.00
April 7, 1915, Warrant No. 8.....	13.00
April 7, 1915, Warrant No. 9.....	2.00
April 7, 1915, Warrant No. 10.....	2.50
May 5, 1915, Warrant No. 11.....	60.00
May 15, 1915, Warrant No. 12.....	31.40

Total .....\$1,025.94

May 15, 1915, balance cash on hand.....\$ 991.74

Respectfully submitted,

R. D. ALWAY, M. D., Secretary-Treasurer.

Dr. Kenney, chairman of the Auditing Committee, made the following report:

#### REPORT OF THE AUDITING COMMITTEE

The Auditing Committee reports that they have carefully gone over the records and vouchers of the Secretary and Treasurer, and found them correct.

Signed, H. T. KENNY, M. D.; L. G. HILL, M. D.; and H. R. KENASTON, M. D.

Moved by Dr. Jones, and carried, that the report of the Auditing Committee be accepted as read.

The meeting adjourned to the call of the President.

### SECOND SESSION—MAY 20TH

The Board of Councilors was called to order by the First Vice-President, Dr. J. B. Vaughn.

Castlewood. Those present were: Dr. L. G. Hill, Watertown; Dr. B. T. Green, Brookings; Dr. H. T. Kenney, Pierre; Dr. T. C. Billion, Sioux Falls; Dr. H. R. Kenaston, Bonesteel; Dr. F. E. Ashcroft, Deadwood; Dr. E. W. Jones, Mitchell, Alternate.

Moved by Dr. Ashcroft, and carried, that an allowance of \$50.00 be made for the Delegate to the A. M. A. meeting at San Francisco.

Moved by Dr. Kenaston, and carried, that an appropriation of \$100.00 for public education be allowed, and an overdraft of \$50.00, if necessary, the latter to be allowed at the next meeting of the State Association.

Moved by Dr. Green, and carried, that the bill for the Secretary's salary and postage be allowed.

Moved by Dr. Ashcroft, and carried, that the bills for expenses of the Delegates to the Pierre meeting be allowed.

Moved by Dr. Green, and carried, that a \$6.00 refund on the Fourth District be allowed, on account of the failure of the Hughes County Bank of Blunt, which contained the dues of the Fourth District Medical Society.

The election of officers of the Council for the ensuing year, was the next order of business. Dr. William Edwards, of Bowdle, was elected President; and Dr. H. T. Kenney, of Pierre, was elected Secretary.

Moved by Dr. Ashcroft that \$50.00 be placed at the disposal of Dr. Alway for the purpose of securing a publication in pamphlet form of the transactions of this Association as well as in serial form in THE JOURNAL-LANCET. Seconded by Dr. Hill. After considerable discussion, the motion was lost.

Moved by Dr. Jones, and carried, that the Board adjourn *sine die*.

## DISTRICT AND COUNTY ROSTER

### ABERDEEN DISTRICT MEDICAL SOCIETY—NO. 1

**PRESIDENT**  
King, H. I. .... Aberdeen

**SECRETARY**  
Murdy, B. C. .... Aberdeen

Adams, B. A. .... Bristol

Adams, J. F. .... Aberdeen

Aldrich, H. H. .... Wessington

Alway, R. D. .... Aberdeen

Bailey, F. C. .... Redfield

Baldwin, F. M. .... Redfield

Bates, W. A. .... Northville

Bear, H. .... Timber Lake

Beil, A. .... Selby

Brosseau, J. E. .... Frankfort

Brown, A. E. .... Webster

Bruner, J. E. .... Frederick

Button, J. A. .... Mobridge

Carpenter, G. S. .... Bowdle

Carson, D. J. .... Faulkton

Countrymen, G. E. .... Aberdeen

Crain, F. M. .... Redfield

Creamer, Frank H. .... Dupree

Curtis, J. E. .... Lemmon

Dinsmore, W. E. .... Claremont

Daupe, J. H. .... Waubay

Dunn, J. E. .... Stratford

Edgerton, Wm. .... St. Paul

Edwards, Wm. .... Bowdle

Ferguson, W. J. .... Milbank

Fiksdal, M. J. .... Webster

Flett, Charles .... Milbank

Freyberg, F. W. .... Aberdeen

Geib, D. .... Groton

Gerdes, O. H. .... Eureka

Ghent, C. H. .... White Rock

Hawkins, A. P. .... Waubay

Herman, H. J. .... Webster

Herman, J. D. .... Conde

Hill, Robert. .... Ipswich

Hoagland, C. C. .... Veblen

Holmes, A. E. .... Verdon

Holmes, Chas. F. .... Hecla

Homan, C. A. .... Aberdeen

Jackson, E. B. .... Aberdeen

Jacotel, J. A. .... Milbank

Jarvis, Abbie .... Faulkton

Johnston, M. C. .... Aberdeen

Jones, J. D. .... Groton

Kaps, F. O. .... Britton

Kerns, G. G. .... Leola

Kettner, J. C. .... Leola

Kjerland, T. N. .... Webster

Kraushaar, F. J. .... Aberdeen

Kriesel, W. A. .... Watertown

Kutnewsky, J. K. .... Redfield

Lavery, C. J. .... Aberdeen

Longstreth, W. I. .... Sisseton

McCauley, C. E. .... Aberdeen

Mertens, J. J. .... Gettysburg

Miller, E. O. .... Aberdeen

Miller, Frank. .... Aberdeen

Miller, V. M. .... Mellette

Mitchell, Fred L. .... Orient

Morton, Marcus G. .... New Effington

Murdy, R. L. .... Aberdeen

Olson, C. L. .... McIntosh

Olson, C. O. .... Groton

Pickering, L. A. .... Aberdeen

Potter, Geo. W. .... Redfield

Powell, J. W. .... Webster

Rock, H. J. .... Aberdeen

Rosenthal, Sigmond .... Java

Sampson, I. J. .... Mellette

Sorenson, A. A. .... Aberdeen

Sutton, Dewey .... Wolsey

Totten, F. C. .... Lemmon

Twining, G. H. .... Mobridge

Van Dalsem, Frieda .... Huron

Weidman, C. E. .... Cresbard

Weishaar, Chas. H. .... Andover

Whiteside, J. D. .... Aberdeen

### WATERTOWN DISTRICT MEDICAL SOCIETY—NO. 2

**PRESIDENT**  
Benner, W. J. .... Willow Lake

**SECRETARY**  
Freeburg, H. M. .... Watertown

Ash, James C. .... Garden City

Bartron, H. J. .... Watertown

Bates, J. S. .... Clear Lake

Campbell, R. F. .... Watertown

Crawford, J. H. .... Castlewood

Dickinson, S. B. .... Watertown

Eddy, J. S. .... Henry

Edsall, J. L. .... Clark

Finnerud, H. M. .... Watertown

Hammond, M. J. .... Watertown

Haraldson, R. .... Watertown

Hendricson, Paul. .... Vienna

Hill, L. G. .... Watertown

Johnson, A. E. .... Watertown

Koran, Finn .... Watertown

Lockwood, J. H. .... Garden City

Magee, W. G. .... Watertown

McIntyre, P. S. .... Bradley

Mullen, R. W. .... Florence

O'Bryan, H. J. .... Watertown

O'Toole, C. S. .... Watertown

Parsons, H. C. .... Watertown

Ramsey, E. T. .... Clark

Richards, G. H. .... Clear Lake

Sherwood, H. W. .... Doland

Smith, S. W. .... Henry

Staley, F. H. .... Hazel

Tarbell, H. A. .... Watertown

Vaughn, J. B. .... Castlewood

## BROOKINGS DISTRICT MEDICAL SOCIETY—NO. 3

<b>PRESIDENT</b>	
Hopkins, N. K.	Arlington
<b>SECRETARY</b>	
Grosvenor, L. N.	Huron
Allison, B. S.	Lake Preston
Bailey, N. L.	Lake Preston
Baker, J. C.	Ramona
Burleigh, G. H.	Estelline
Dyar, B. A.	De Smet

Edward, George	Bruce
Fisk, R. R.	Brookings
Frudensfeld, H. H.	Madison
Green, B. T.	Brookings
Grove, E. H.	Hetland
Jones, Thos. E.	Chester
Kellog, H. E.	Madison
Leach, W. O.	Huron
McKie, J. F.	Wessington
Miller, E. C.	Brookings

Noble, A. G.	Howard
Noble, J. C.	Howard
Scanlan, D. L.	Volga
Schoonmaker, F. H.	Arlington
Schwendener, J. E.	Bryant
Sheets, O. B.	Carthage
Shirley, J. C.	Huron
Sprague, B. H.	Huron
Torwick, E. E.	Volga
Westaby, R. S.	Madison

## PIERRE DISTRICT MEDICAL SOCIETY—NO. 4

<b>PRESIDENT</b>	
Kenney, H. T.	Pierre
<b>SECRETARY</b>	
Langsdale, G. H.	Highmore
Burnside, I. M.	Highmore

Hart, B. M.	Blunt
Hollister, C. M.	Pierre
Martin, H. B.	Harrold

McWhorter, P. W.	Miller
Minard, Ralph W.	Midland
Riggs, T. F.	Pierre
Stegeman, S. B.	Onida
Youngs, A. H.	Pierre

## MITCHELL DISTRICT MEDICAL SOCIETY—NO. 6

<b>PRESIDENT</b>	
Templeton, C. V.	Woonsocket
<b>SECRETARY</b>	
Gillis, F. D.	Mitchell
Ball, W. R.	Mitchell
Benckleman, W. H.	Stickney
Berry, S. G.	Tyndall
Black, Wm.	Gaylord, Minn.
Bobb, B. A.	Mitchell
Bobb, C. S.	Mitchell
Bolbb, E. V.	Mitchell
Bower, Chas. A.	Mitchell
Buffaloe, A. J.	Mitchell
Burnes, P. E.	Alpena
Carney, J. G.	Parkston

Clark, J. C.	Mt. Vernon
Clauser, G. A.	Bridgewater
Cook, J. L.	Marion, Iowa
Delaney, W. A.	Mitchell
Hagedorn, H. H.	Alpena
Hartzell, H. W.	Chamberlain
Hoyne, A. H.	Salem
Hunt, W. M.	Draper
Jenkinson, H. E.	Wessington Springs
Jones, E. W.	Mitchell
Just, Guy H.	Pukwana
Kammerling, Theo.	Spencer
Kelly, R. A.	Mitchell
Kimble, O. A.	Murdo
King, E. E.	Mitchell

Kramer, E. R.	Letcher
LaShier, B. W.	Armour
Maytum, W. J.	Alexandria
McClellan, S. A.	Kennebeck
Menser, Bert.	Bridgewater
Pherrin, O. D.	Lake Andes
Port, F. J.	Parkston
Pugh, G. F.	White River
Reynolds, W. P.	Lane
Rogers, J. C.	White Lake
Shull, J. E.	Alpena
Sprecher, Samuel.	Tripp
Stewart, T. M.	Canastota
Treon, Fred.	Chamberlain
Waldner, J. L.	Parkston
Young, E. M.	Plankington

## SIOUX FALLS DISTRICT MEDICAL SOCIETY—NO. 7

<b>PRESIDENT</b>	
Cottam, G. G.	Sioux Falls
<b>SECRETARY</b>	
Klaveness, E.	Sioux Falls
Billion, T. J.	Sioux Falls
Bliss, G. W.	Valley Springs
Bliss, P. D.	Colton
Bower, C. F.	Hartford
Brandon, P. E.	Sioux Falls
Brown, S. A.	Sioux Falls
Butler, C. A.	Dell Rapids
Craig, D. W.	Sioux Falls
Culver, C. F.	Sioux Falls
Devall, F. C.	Garretson
Donahoe, S. A.	Sioux Falls
Donahoe, W. E.	Sioux Falls
Eagan, J. B.	Dell Rapids
Egan, M. H.	Sioux Falls
Gage, E. E.	Sioux Falls
Grove, A. F.	Dell Rapids
Grove, M. M.	Dell Rapids

Gulbrandson, G. H.	Canton
Housman, W. McK.	Dell Rapids
Hummer, H. R.	Canton
Hyden, A.	Alcester
Jones, E. A. D.	Sioux Falls
Joyce, E.	Hurley
Keller, S. A.	Sioux Falls
Keller, W. F.	Sioux Falls
Lackett, R. F.	Canton
Lewis, Eli	Canton
Moore, W. E.	Sioux Falls
Nessa, N. J.	Sioux Falls
Parsons, J. G.	Sioux Falls
Patterson, W. M.	Egan
Perkins, E. L.	Sioux Falls
Price, E. F.	Alcester
Putnam, E. D.	Sioux Falls
Putnam, F. I.	Sioux Falls
Reagan, R.	Garretson
Rider, A. S.	Flandreau

Roberts, T. S.	Sioux Falls
Roberts, W. P.	Sioux Falls
Rundlett, D. L.	Sioux Falls
Sawyer, O. O.	Dell Rapids
Schwartz, Jos.	Sioux Falls
Sherwood, H. H.	Humbolt
Skogen, T. T.	Flandreau
Smedley, Irene.	Sioux Falls
Spafford, F. A.	Flandreau
Stern, M. A.	Sioux Falls
Stevens, R. G.	Sioux Falls
Subera, H. W.	Sioux Falls
Thompson, Gottfried.	Sioux Falls
Trail, C. J.	Sioux Falls
Tufts, A. H.	Sioux Falls
Valkenaar, F. W.	Chancellor
Van Demark, G. E.	Sioux Falls
Wildish, R. M.	Worthing
Young, S. A.	Lennox
Zetlitz, K.	Sioux Falls
Zimmerman, Goldie.	Sioux Falls

## YANKTON DISTRICT MEDICAL SOCIETY—NO. 8

<b>PRESIDENT</b>	
Herzberg, Mortimer.	Vermillion
<b>SECRETARY</b>	
Roane, James.	Yankton
Adams, G. S.	Yankton
Anderson, E. T.	Platte

Anderson, T. C.	Volin
Augsburger, E. D.	Menno
Beall, L. F.	Irene
Blezek, F. M.	Tabor
Burkland, P. R.	Vermillion
Bushnell, Wm. F.	Elk Point
Cruikshank, Thos.	Vermillion

Duguid, J. O.	Springfield
Elliott, A. V.	Beresford
Eyman, E. V.	Yankton
Frink, R. P.	Wagner
Greenfield, J. C.	Avon
Gross, C. C.	Yankton
Hohf, J. A.	Yankton



Hohf, S. M. .... Yankton  
 Hollingsworth, J. E. .... Avon  
 Isaac, J. P. .... Freeman  
 Kalayjian, D. S. .... Parker  
 Kaufmann, E. J. .... Marion  
 Keeling, C. M. .... Springfield  
 Klima, Hermanigald. .... Tyndall  
 Koobs, H. J. G. .... Scotland  
 Landmann, G. A. .... Scotland  
 Langley, C. S. .... Lake Andes  
 Leighton, I. W. .... Scotland

Lloyd, J. C. .... Platte  
 Mead, L. C. .... Yankton  
 Moore, D. V. .... Yankton  
 Moore, F. A. .... Lesterville  
 Morehouse, E. M. .... Yankton  
 Murphy, Jennie C. .... Yankton  
 Newby, H. D. .... Parker  
 Parizek, F. J. .... Basin, Mont.  
 Payne, R. H. .... Tripp  
 Pinard, P. H. A. .... Jefferson

Posthuma, Anne .... Centerville  
 Seapy, J. A. .... Geddes  
 Sedlacek, F. A. .... Omaha, Neb  
 Smith, F. C. .... Yankton  
 Stewart, J. L. .... Custer  
 Struble, A. J. .... Centerville  
 Swezey, F. A. .... Wakonda  
 Tookey, A. F. .... Beresford  
 Verity, Walter. .... Beresford  
 Willhite, F. V. .... Yankton  
 Wipf, A. A. .... Freeman

## BLACK HILLS DISTRICT MEDICAL SOCIETY—NO. 9

## PRESIDENT

Moffit, T. W. .... Deadwood

## SECRETARY

Minty, F. W. .... Rapid City

Allen, A. G. .... Deadwood  
 Ashcroft, F. E. .... Deadwood  
 Ayer, F. R. .... Faith  
 Bilger, Frank, W. .... Ardmore  
 Brooks, J. D. .... Sturgis

Chassell, J. L. .... Belle Fourche  
 Clough, F. E. .... Lead  
 Crane, H. L. .... Lead  
 Fleeger, R. B. .... Lead  
 Freeman, J. W. .... Lead  
 Hills, W. C. .... Newell  
 Hultz, Eugenia. .... Hill City  
 Long, M. .... Custer  
 McLaurin, A. A. .... Rapid City

Martin, J. H. .... Lead  
 Mattison, J. A. .... Hot Springs  
 Northrup, F. A. .... Interior  
 Robinson, W. E. .... Rapid City  
 Schneerer, F. B. .... Deadwood  
 Wheatley, E. J. .... Danville, Ill.  
 Wilcox, H. H. .... Hot Springs  
 Woodworth, R. E. .... Custer

## ROSEBUD DISTRICT MEDICAL SOCIETY—NO. 10

## PRESIDENT

Waterman, J. C. .... Burke

## SECRETARY

Bryant, F. A. .... Herrick

Claggett, M. H. .... Fairfax  
 Kenaston, H. R. .... Bonesteel  
 Murnan, H. A. .... Gregory

Overton, R. V. .... Dixon  
 Quinn, Wm. .... Bonesteel  
 Winsett, W. E. .... Dallas

## ALPHABETICAL ROSTER

Adams, B. A. .... Bristol  
 Adams, G. S. .... Yankton  
 Adams, J. F. .... Aberdeen  
 Aldrich, H. H. .... Wessington  
 Allen, A. G. .... Deadwood  
 Allison, B. S. .... Lake Preston  
 Alway, R. D. .... Aberdeen  
 Anderson, E. T. .... Platte  
 Anderson, T. C. .... Volin  
 Ash, James C. .... Garden City  
 Ashcroft, F. E. .... Deadwood  
 Augspurger, E. D. .... Menno  
 Ayer, F. R. .... Faith  
 Bailey, F. C. .... Redfield  
 Bailey, N. L. .... Lake Preston  
 Baker, J. C. .... Ramona  
 Baldwin, F. M. .... Redfield  
 Ball, W. R. .... Mitchell  
 Bartron, H. J. .... Watertown  
 Bates, J. S. .... Clear Lake  
 Bates, W. A. .... Northville  
 Beall, L. F. .... Irene  
 Bear, H. .... Timber Lake  
 Beil, A. .... Selby  
 Benckleman, W. H. .... Stickney  
 Benner, W. J. .... Willow Lake  
 Berry, S. G. .... Tyndall  
 Bilger, Frank, W. .... Ardmore  
 Billion, T. J. .... Sioux Falls  
 Black, Wm. .... Gaylord, Minn.  
 Blezek, F. M. .... Tabor  
 Bliss, G. W. .... Valley Springs  
 Bliss, P. D. .... Colton  
 Bobb, B. A. .... Mitchell  
 Bobb, Clyde S. .... Mitchell  
 Bobb, E. V. .... Mitchell  
 Bower, Chas. A. .... Mitchell  
 Bower, C. F. .... Hartford

Brandon, P. E. .... Sioux Falls  
 Brooks, J. D. .... Sturgis  
 Brosseau, J. T. .... Frankfort  
 Brown, A. E. .... Webster  
 Brown, S. A. .... Sioux Falls  
 Bruner, J. E. .... Frederick  
 Bryant, F. A. .... Herrick  
 Buffalo, A. J. .... Mitchell  
 Burkland, P. R. .... Vermillion  
 Burleigh, G. H. .... Estelline  
 Burnes, P. E. .... Alpena  
 Burnside, I. M. .... Highmore  
 Bushnell, Wm. F. .... Elk Point  
 Butler, C. A. .... Dell Rapids  
 Button, J. A. .... Mobridge  
 Campbell, R. F. .... Watertown  
 Carney, J. G. .... Parkston  
 Carpenter, G. S. .... Bowdle  
 Carson, D. J. .... Faulkton  
 Chassell, J. L. .... Belle Fourche  
 Claggett, M. H. .... Fairfax  
 Clark, J. C. .... Mt. Vernon  
 Clauser, G. A. .... Bridgewater  
 Clough, F. E. .... Lead  
 Cook, J. L. .... Marion, Iowa  
 Cottam, G. G. .... Sioux Falls  
 Countryman, G. E. .... Aberdeen  
 Craig, D. W. .... Sioux Falls  
 Crain, F. M. .... Redfield  
 Crane, H. L. .... Lead  
 Crawford, J. H. .... Castlewood  
 Creamer, F. H. .... Dupree  
 Cruickshank, Thos. .... Vermillion  
 Culver, C. F. .... Sioux Falls  
 Curtis, J. E. .... Lemmon  
 Delaney, W. A. .... Mitchell  
 Devall, F. C. .... Garretson  
 Dickinson, S. B. .... Watertown

Dinsmore, W. E. .... Claremont  
 Donahoe, S. A. .... Sioux Falls  
 Donahoe, W. E. .... Sioux Falls  
 Daupe, J. H. .... Waubay  
 Duguid, J. O. .... Springfield  
 Dunn, J. E. .... Stratford  
 Dyar, B. A. .... De Smet  
 Eagan, J. B. .... Dell Rapids  
 Eddy, J. S. .... Henry  
 Edgerton, Wm. .... St. Paul  
 Edsall, J. L. .... Clark  
 Edward, George .... Bruce  
 Edwards, Wm. .... Bowdle  
 Egan, M. H. .... Sioux Falls  
 Elliott, A. V. .... Beresford  
 Eymann, E. V. .... Yankton  
 Ferguson, W. J. .... Milbank  
 Fiksdal, M. J. .... Webster  
 Finnerud, H. M. .... Watertown  
 Fisk, R. R. .... Brookings  
 Fleeger, R. B. .... Lead  
 Flett, Charles .... Milbank  
 Freeman, J. W. .... Lead  
 Freeburg, H. M. .... Watertown  
 Freyberg, F. W. .... Aberdeen  
 Frink, R. P. .... Wagner  
 Frudenfeld, H. H. .... Madison  
 Gage, E. E. .... Sioux Falls  
 Geib, D. .... Groton  
 Gerdes, O. H. .... Eureka  
 Ghent, C. H. .... White Rock  
 Gillis, F. D. .... Mitchell  
 Green, B. T. .... Brookings  
 Greenfield, J. C. .... Avon  
 Gross, C. C. .... Yankton  
 Grosvenor, L. N. .... Huron  
 Grove, A. F. .... Dell Rapids  
 Grove, E. H. .... Hetland

Grove, M. M. .... Dell Rapids  
 Gulbrandson, G. H. .... Canton  
 Hagedorn, H. H. .... Alpena  
 Hammond, M. J. .... Watertown  
 Haraldson, R. .... Watertown  
 Hart, B. M. .... Blunt  
 Hartzell, H. W. .... Chamberlain  
 Hawkins, A. P. .... Waubay  
 Hendricson, Paul. .... Vienna  
 Herman, H. J. .... Webster  
 Herman, J. D. .... Conde  
 Herzberg, Mortimer. .... Vermillion  
 Hill, L. G. .... Watertown  
 Hill, Robert. .... Ipswich  
 Hills, W. C. .... Newell  
 Hoagland, C. C. .... Veblen  
 Hohf, J. A. .... Yankton  
 Hohf, S. M. .... Yankton  
 Hollingsworth, J. E. .... Avon  
 Hollister, C. M. .... Pierre  
 Holmes, A. E. .... Verdon  
 Holmes, Chas. F. .... Hecla  
 Homan, C. A. .... Aberdeen  
 Hopkins, N. K. .... Arlington  
 Hoyne, A. H. .... Salem  
 Housman, W. McK. .... Dell Rapids  
 Hultz, Eugena. .... Hill City  
 Hummer, H. R. .... Canton  
 Hunt, W. M. .... Draper  
 Hyden, A. .... Alcester  
 Isaac, J. P. .... Freeman  
 Jackson, E. B. .... Aberdeen  
 Jacotel, J. A. .... Milbank  
 Jarvis, Abbie. .... Faulkton  
 Jenkinson, H. E. ....  
     ..... Wessington Springs  
 Johnson, A. E. .... Watertown  
 Johnston, M. C. .... Aberdeen  
 Jones, E. A. D. .... Sioux Falls  
 Jones, E. W. .... Mitchell  
 Jones, J. D. .... Groton  
 Jones, Thos. E. .... Chester  
 Joyce, E. .... Hurley  
 Just, Guy H. .... Pukwana  
 Kalayjian, D. S. .... Parker  
 Kammerling, Theo. .... Spencer  
 Kaps, F. O. .... Britton  
 Kaufmann, E. J. .... Marion  
 Keeling, C. M. .... Springfield  
 Keller, S. A. .... Sioux Falls  
 Keller, W. F. .... Sioux Falls  
 Kellog, H. E. .... Madison  
 Kelly, R. A. .... Mitchell  
 Kenaston, H. R. .... Bonesteel  
 Kenney, H. T. .... Pierre  
 Kerns, G. G. .... Leola  
 Kettner, J. C. .... Leola  
 Kimble, O. A. .... Murdo  
 King, L. E. .... Mitchell  
 King, H. I. .... Aberdeen  
 Kjerland, T. N. .... Webster  
 Klaveness, E. .... Sioux Falls  
 Klima, Hermanigald. .... Tyndall  
 Koobs, H. J. G. .... Scotland  
 Koran, Finn. .... Watertown  
 Kramer, E. R. .... Letcher  
 Kraushaar, F. J. .... Aberdeen  
 Kriesel, W. A. .... Watertown  
 Kutnewsky, J. K. .... Redfield  
 Lackett, R. F. .... Canton  
 Landmann, G. A. .... Scotland  
 Langley, C. S. .... Lake Andes  
 Langsdale, G. H. .... Highmore  
 LaShier, B. W. .... Armour

Lavery, C. J. .... Aberdeen  
 Leach, W. O. .... Huron  
 Leighton, I. W. .... Scotland  
 Lewison, Eli. .... Canton  
 Lloyd, J. C. .... Platte  
 Lockwood, J. H. .... Garden City  
 Long, M. .... Custer  
 Longstreth, W. I. .... Sisseton  
 Magee, W. G. .... Watertown  
 Martin, H. B. .... Harrold  
 Martin, J. H. .... Lead  
 Mattison, J. A. .... Hot Springs  
 Maytum, W. J. .... Alexandria  
 McCauley, C. E. .... Aberdeen  
 McClellan, S. A. .... Kennebeck  
 McIntyre, P. S. .... Bradley  
 McKie, J. F. .... Wessington  
 McLaurin, A. A. .... Rapid City  
 McWhorter, P. W. .... Miller  
 Mead, L. C. .... Yankton  
 Menser, Bert. .... Bridgewater  
 Mertens, J. J. .... Gettysburg  
 Miller, E. C. .... Brookings  
 Miller, E. O. .... Aberdeen  
 Miller, Frank. .... Aberdeen  
 Miller, V. M. .... Mellette  
 Minard, Ralph W. .... Midland  
 Minty, F. W. .... Rapid City  
 Mitchell, Fred L. .... Crient  
 Moffit, T. W. .... Deadwood  
 Moore, D. V. .... Yankton  
 Moore, F. A. .... Lesterville  
 Moore, W. E. .... Sioux Falls  
 Morehouse, E. M. .... Yankton  
 Morton, Marcus G. .... New Effington  
 Mullen, R. W. .... Florence  
 Murdy, B. C. .... Aberdeen  
 Murdy, R. L. .... Aberdeen  
 Murnan, H. A. .... Gregory  
 Murphy, Jennie C. .... Yankton  
 Nessa, N. J. .... Sioux Falls  
 Newby, H. D. .... Parker  
 Noble, A. G. .... Howard  
 Noble, J. C. .... Howard  
 Northrup, F. A. .... Interior  
 O'Bryan, H. J. .... Watertown  
 O'Toole, C. S. .... Watertown  
 Olson, C. L. .... McIntosh  
 Olson, C. O. .... Groton  
 Overton, R. V. .... Dixon  
 Parizek, F. J. .... Basin, Mont.  
 Parsons, H. C. .... Watertown  
 Parsons, J. G. .... Sioux Falls  
 Patterson, W. M. .... Egan  
 Payne, R. H. .... Tripp  
 Perkins, E. L. .... Sioux Falls  
 Pherrin, O. D. .... Lake Andes  
 Pickering, L. A. .... Aberdeen  
 Pinard, P. H. A. .... Jefferson  
 Potter, Geo. W. .... Redfield  
 Port, F. J. .... Parkston  
 Posthuma, Anne. .... Centerville  
 Powell, J. W. .... Webster  
 Price, E. F. .... Alcester  
 Pugh, G. F. .... White River  
 Putnam, E. D. .... Sioux Falls  
 Putnam, F. I. .... Sioux Falls  
 Quim, Wm. .... Bonesteel  
 Ramsey, E. T. .... Clark  
 Reagan, R. .... Garretson  
 Reynolds, W. P. .... Lane  
 Richards, G. H. .... Clear Lake  
 Rider, A. S. .... Flandreau

Riggs, T. F. .... Pierre  
 Roane, James. .... Yankton  
 Roberts, T. S. .... Sioux Falls  
 Roberts, W. P. .... Sioux Falls  
 Robinson, W. E. .... Rapid City  
 Rock, H. J. .... Aberdeen  
 Rogers, J. C. .... White Lake  
 Rosenthal, Sigmond. .... Java  
 Rundlett, D. L. .... Sioux Falls  
 Sampson, I. J. .... Mellette  
 Sawyer, O. O. .... Dell Rapids  
 Scanlan, D. L. .... Volga  
 Schneerer, F. B. .... Deadwood  
 Schoonmaker, F. H. .... Arlington  
 Schwartz, Jos. .... Sioux Falls  
 Schwendener, J. E. .... Bryant  
 Seapy, J. A. .... Geddes  
 Sedlacek, F. A. .... Omaha, Neb.  
 Sheets, O. B. .... Carthage  
 Sherwood, H. H. .... Humbolt  
 Sherwood, H. W. .... Doland  
 Shirley, J. C. .... Huron  
 Shull, J. E. .... Alpena  
 Skogen, T. T. .... Flandreau  
 Sorenson, A. A. .... Aberdeen  
 Smedley, Irene. .... Sioux Falls  
 Smith, F. C. .... Yankton  
 Smith, S. W. .... Henry  
 Spafford, F. A. .... Flandreau  
 Sprague, B. H. .... Huron  
 Sprecher, Samuel. .... Tripp  
 Staley, F. H. .... Hazel  
 Stegeman, S. B. .... Onida  
 Stern, M. A. .... Sioux Falls  
 Stevens, R. G. .... Sioux Falls  
 Stewart, J. L. .... Custer  
 Stewart, T. M. .... Canastota  
 Struble, A. J. .... Centerville  
 Subera, H. W. .... Sioux Falls  
 Sutton, Dewey. .... Wolsey  
 Swezey, F. A. .... Wakonda  
 Tarbell, H. A. .... Watertown  
 Templeton, C. V. .... Woonsocket  
 Thompson, Gottfried. .... Sioux Falls  
 Tooke, A. F. .... Beresford  
 Torwick, E. E. .... Volga  
 Totten, F. C. .... Lemmon  
 Trail, C. J. .... Sioux Falls  
 Treon, Fred. .... Chamberlain  
 Tufts, A. H. .... Sioux Falls  
 Twining, G. H. .... Mobridge  
 Valkenaar, F. W. .... Chancellor  
 Van Dalsem, Frieda. .... Huron  
 Van Demark, G. E. .... Sioux Falls  
 Vaughn, J. B. .... Castlewood  
 Weidman, C. E. .... Cresbard  
 Weishaar, Chas. H. .... Andover  
 Verity, Walter. .... Beresford  
 Waldner, J. L. .... Parkston  
 Waterman, J. C. .... Burke  
 Westaby, R. S. .... Madison  
 Wheatley, E. J. .... Danville, Ill.  
 Whiteside, J. D. .... Aberdeen  
 Wildish, R. M. .... Worthing  
 Wilcox, H. H. .... Hot Springs  
 Willhite, F. V. .... Yankton  
 Winsett, W. E. .... Dallas  
 Wipf, A. A. .... Freeman  
 Woodworth, R. E. .... Custer  
 Youngs, A. H. .... Pierre  
 Young, E. M. .... Plankinton  
 Young, S. A. .... Lennox  
 Zetlitz, K. .... Sioux Falls  
 Zimmerman, Goldie. .... Sioux Falls

## LIFE EXTENSION: PRESIDENT'S ADDRESS

BY FREDERICK TREON, M. D.

CHAMBERLAIN, SOUTH DAKOTA

Fellows of the South Dakota Medical Association, and Visitors:

I greet you, and trust the year since last we met, has proven a pleasant and profitable one to all.

It is fitting that our Association should meet at this time, in this splendid city, the metropolis of our young State. Your growth is so rapid as to astonish us all. The energy and push of your citizens so characteristic of this western country, is destined to make this, not only a commercial center, but, a mecca for the suffering ones of our great commonwealth.

I desire at this time, to return to the Association my sincere thanks for the honor conferred upon me at Watertown when you chose me as your president, and to assure you of my hearty appreciation. I am sure you all remember the splendid address of Dr. Spafford at that meeting, and I hope that it has been an inspiration to you, as it has been to me.

My paper is along the lines of "Life-extension,"—preventable accidents, industrial or occupational diseases, and a plea for an early industrial training for our boys, giving us a better manhood.

## CONSERVATION OF HUMAN LIFE

We are living in an age of great conserves. We hear much about the conservation of forests, fuel, lands, and of property in general, and of animals in particular. But that which concerns, or should concern, us most, is the conservation of human life. When we think of the loss of life by preventable accidents, to say nothing of the number maimed in the conduct of the great industries of our country, and realize that more men have been killed by the machinery set in motion,—an aggregate greater than that caused by all the wars this country has ever engaged in; when we reflect that in our gigantic craze to push through everything with lightning speed, crushing out human life, swelling the death-rate with needless autoaccidents, added to an already tremendous casualty list of railroads and other machinery necessary to our advance civilization; when we think of the deep-wrought destruction of economic resources of life, and realize fully what these wholesale accidents mean to our country, commercially, we appreciate somewhat the need of prophylaxis, the urgent necessity for safety

and universal peace. The Carnegie Endowment for International Peace, in a recent publication referring to the dreadful conflict now raging in Europe, says, "Not only have the destruction of life, the devastation and the suffering in the warring countries passed all experience, but the cessation of production, the closing of markets, the blocking of trade-routes, the interruption of exchanges, have affected industry and caused ruin and poverty in all the peaceful countries of the world."

Taking the report of the Comptroller of the Currency, for 1914, which gives the assets of all United States banking institutions at that time as \$25,712,163,599.48, and estimating the census of our country then at 97,000,000, we find the average worth of a human life to be about \$265.08. But the actual resources of our country would be many times that given by the Comptroller, and brings the per capita worth up to from \$1,500 to \$10,000. So you see we are really worth even more than registered stock.

During the calendar year 1913, in the registration area which includes twenty-four states, representing 63,298,718 persons, approximately two-thirds of the country's population, there were 890,848 deaths, or 14.1 per thousand. Of that number 68,566 were from external causes, 9,988 being suicides. Basing our figures on railroad accidents during the year 1913, we find in the registration area there were 8,212 deaths, while for the entire United States during the same period there were a total of 10,964 killed by railroads. These figures are given out by the Interstate Commerce Commissioner, and are presumably correct. If the same holds true in the states not included, then the registration area figures, as supplied in the mortality statistics of the Bureau of Census represent, as stated, about two-thirds of the actual death-rate in this country; and we would have approximately 91,421 deaths from external cause. Added to this must be occupational diseases, and all deaths due to preventable causes other than external. Taking, then, our annual death-rate as 1,000,000, we find one-fourth of that number, or 250,000, as the number of deaths every year that should not have happened.

But the unpardonable sin of our civilization is the death of 250,000 infants last year in the United States; and it was not an unusual mor-



tality among children, either. Dr. Charles Harrington, in his recent work, "Practical Hygiene," says: "The chief factors in the causation of high infant-mortality are premature births, heredity, intemperance, early marriages, neglect, carelessness, ignorance, improper food, unsanitary surroundings, industrial conditions, illegitimacy, and perhaps infant life-insurance." It is only when figuring the mortality of infants that we get anything like a correct value on human life, for, here we have the full allotted time to figure on. In the statistics available, those of Prof. Irving Fisher, of the National Conservation Commission, are largely adopted. He devotes a chapter in his report to the "Prolongation of Life." It has been suggested by someone that about 42 per cent of all deaths under present conditions might be postponed; but the length of life can be figured out only on given ages and by the mortality tables which are generally accepted by life-insurance actuaries.

#### SAFETY FIRST

Whoever invented the motto, "Safety First," or devised the little badge generally worn by railroad men, set in motion a slogan far greater than was ever dreamed. It means for the railroad systems that the very best of everything shall be called into use: machinery must be of the highest grade; dangerous places made safe; rails of right weight and quality; switches properly constructed and guarded; and that road-beds should have proper grades, made straight and with good ballast. It means steel coaches securely built. It means that engines that draw human and other freight must be of the highest grade of excellence. It means, eventually, double trackage for all roads. It means every possible precaution in every particle of mechanical ingenuity or device called into action. It means proper ventilation in passenger and sleeping coaches. It means also that the best type of manhood shall be employed, and that no man who is a "booze" fighter can hold his job. It means that a clear brain and a nerved hand with a quick eye shall be at the throttle. And when this great movement shall include all manufactures, as it will, it means that employes in factories must be given proper air, light, and protection from dust, and from gases, and poisons over which they work. We must not forget that there are preventable diseases, as well as preventable accidents. Occupational diseases must be included, the same as accidents, in policies that will afford the wage-earner protection, and the wages must be commensurate with

his necessities. It is not always the occupation that is at fault; but it may be the attending circumstances that promote the morbidity and mortality rates of certain callings.

#### OCCUPATIONAL DISEASE

The causes for occupational diseases of particular hygiene interest are given by Harrington (Group 1), as:

1. Irritating and poisonous dusts.
2. Irritating and poisonous gases and fumes.
3. Infective or parasitical matter in dust.
4. Abnormal atmospheric pressure.

Of distinct importance, though not always giving rise to definitely proved occupational diseases or poisonings, are occupations of processes, which involve (Group 2):

1. Prolonged use, strain, pressure, fatigue.
2. Excessive heat.
3. Dampness.
4. Offensive gases and vapors.

Perhaps the class of men who suffer most are the workers in metallic dust, and that which stands forth most conspicuously as dangerous is steel-grinding. The diseases to which they are most liable are phthisis, pneumonia, and digestive disorders. I am glad to state that in many of the large mills there are now front and side guards on the big emery and carborundum wheels for the protection of employes against the inhalation of dust particles, the exhaust system being used, particularly in Massachusetts.

If we were to stop here with the enumeration of requirements and of the inventive ingenuity already necessary to our great systems, we should hardly have commenced. Advancement is going forward in every branch, and yet our manufacturing mills and railroads and other carriers are far from perfect in safety devices. The great ocean steamers, carrying their cargoes of human freight, while built as securely as it would seem necessary by their owners, rudely awoke when that gigantic sea palace, the Titanic, was found to be but so much tinder when coming in contact with a floating iceberg, demonstrating that "safety first" in the wild determination to make a record-breaking trip, had been overlooked. We all know the cost of human life in that error.

#### VIOLENT DEATHS

The wonderful invention of the airship finds the toll of human life so great in the hands of the "dare-devil" navigator as to make the inventors realize that air is far from practical for navigation. When we reflect how great is the loss

of life from accidents, most of them preventable, we shudder at the thought; and yet, it seems, there never was a time when men so lightly considered human life. We read daily of accidents in mines; and yet little is done to safe-guard those who work under-ground. We hear of a large building collapsing with a hundred or more lives lost, and pass it with a "My, that's terrible." Or we learn of the burning of a school where hundreds of children are caught in a death-trap. Or we read of a theater horror, or of the sinking of a large steamer where a thousand or more meet death in a watery grave, indicating a lack of proper safeguards around a mass of humanity, who, when overtaken by disaster, bravely meet their fate.

While we see much being done for the safety of the public, individuals making up the public should not forget that they owe something to those who are operating railroads, and mills and mines, as well as to themselves, by remembering not to take the risks they so frequently do. Over 50 per cent of all violent deaths are due to gross carelessness on the part of the individual. People rush in front of moving engines, pass between cars, run behind backing locomotives, put their heads out of car windows, board moving trains and do a hundred other foolish things every day. They are careless about machinery, take unnecessary risks when driving autos, etc. It is equally true that, through ignorance and neglect of preventive measures, many lives are constantly sacrificed to avoidable disease.

To me one of the greatest organizations of the times is "The Life Extension Institute" of New York, which was started by Mr. Horace A. Ley, of Springfield, Mass., of which Professor Irving Fisher, of Yale, is chairman of the "Hygiene Reference Board" and Hon. William H. Taft is chairman of the Board of Directors. It is dedicated to the work of human salvage, and seeks to disseminate true light and knowledge. Its field includes personal, household, industrial, and community hygiene. It recommends frequent examinations, and urges upon our people the need for abandoning the deadly habit of waiting until it is too late to check or cure disease before calling in the doctor. All praise to the man behind the institute. I believe it will prove a great factor in conserving human life.

#### PREVENTIVES

The question arises where are we to begin? I answer, in the home and in the schools; and, I believe it is not so much teaching sex hygiene

as it is building a good wholesome environment about the child that is needed; but most of all we need vocational education, and that, too, is a local consideration. The time is no more when manual labor is considered a low occupation. There is a nobility about manual labor, and I cannot too highly compliment the educational boards whose efforts are being made effective along that line. In manual training there is more than one advantage; for, in learning to use the plane, the hammer, the saw, a boy completes his gymnastic education and acquires a dexterity which will always be useful; and, whatever he afterward does, it will hold him in readiness for all apprenticeships and fit him for whatever station in life he may be called on to fill.

The truth is, we are not the hardy race we once were. Ex-President Taft, in a letter to President Rittenhouse of the Life Extension Institute, dated Nov. 24, 1914, says, "It should be our aim to have every citizen developed to the highest point of physical and mental efficiency of which he or she is capable." This is the idea of the Boy Scouts and the Camp-fire girls. He calls attention to Dr. Huber's statement that five out of six applicants are rejected by the army, and that he and his colleagues personally rejected 1,000 out of 1,500 applicants to enter the army during the Philippine war. Mr. Taft says that when war comes to the United States, it must be fought, not altogether by the picked young men who constitute our regular army, but to a very large extent by the rank and file of our population. He further says, "The war in Europe is not killing as many people as now die needlessly of preventable causes." I am satisfied that not alone the medical profession, but every philanthropic citizen should boost for a "National Health Guard." Dr. Harrington says, "The ideal recruit for the army is one who, in the first place, is well built and of superior muscular force, capable of resisting influences tending to depress the nervous and physical powers." The great Napoleon said that the first quality of a soldier is the power to endure fatigue and privation. Courage is only second. "Do me the favor," modestly said Jess Willard to the American newspaper correspondent at Havana, "of telling the American public my victory was made possible by perfect physical condition and by hard work under the able guidance and assistance of Tex O'Rourke, Walter Monohan, Jim Savage, and Jack Hemple, four clean young men." An American daily, commenting on this splendid speech, says,

"The sport who in his hour of triumph attributes his whole success to his own temperate habits, and the clean living of his associates, is a real sportsman." Dr. Walter S. Cornell, in his work on "Medical Inspection of School Children," says, "Physical education represents the first practical endeavor to enforce the observance of personal hygiene. Its scope is necessarily limited to the problems of muscular exercise. In a sense it has been a forerunner of medical inspection, the principal difference between these two activities being that physical education aims at the preservation of health, and medical inspection at its recovery." As medical men, it is our duty to unite with pedagogy in the effort to produce the maximum of efficiency in the school system consistent with the preservation of health. Wherever school children have been examined by physicians, the results have justified the inspection. And at no place has this been so well demonstrated as in Massachusetts, where, in 1907, during one year 318 school-rooms, containing 12,122 pupils, were closed from one day to four weeks. The waste of money involved in the cessation of work for a day or week of more than three hundred teachers, and the loss of schooling suffered by 12,000 children, is a matter of no small moment, declares Dr. Richardson, secretary to the State Board of Health of that state, and he adds, but what we may read into the statistics, of diseases and defects not numerous or serious enough to cause the closure of the school, is of much greater moment. There is a clause in the Massachusetts law so good that I wish our State would adopt it:

"The school committee of every city and town shall cause every child in the public schools to be separately and carefully tested and examined at least once in every school year to ascertain whether he is suffering from defective sight or hearing or from any other disability or defect tending to prevent his receiving the full benefit of his school work, in order to prevent injury to the child or to secure the best educational results."

The enforcement of such a law, wide as it is in its scope, is of more economic value to a community than the mere stamping out of any ordinary epidemic.

I desire to call attention to the splendid work of our committee on Health and Public Instruction under the able guidance of the chairman, Dr. J. G. Parsons, whose efforts have been hampered for

lack of funds. I quote from a recent letter from Dr. Parsons:

"Two of us, Dr. Ashcroft and myself, are serving as members of the Red Cross Seal Commission of this State. We have co-operated so far as possible with the remarkably efficient chairman of this commission, Mrs. E. P. Wanzer, under whose direction the sale of Christmas seals reached \$3,300, ninety per cent of which is available for our State, and is being expended, under the direction of the Commission, in educational work along health lines. And during the rest of the year it will keep in the field a Red Cross visiting nurse, whose personal contact with the needy sick and the philanthropic citizens in different countries is having a wonderful effect in creating public sentiment in favor of public-health work." Vocational or industrial training is here to remain. The schools must be related to real life.

What have we as physicians and surgeons done to keep pace with the times? I quote from the preface of the recent edition of Forcheimer's "Therapeutics of Internal Diseases," words of a splendid man, a wonderful teacher, one of my instructors in college, whom to know was to love, and who, Dr. Frank Billings, who completed the work after Dr. Forcheimer's death, says, was a leader in medicine, a great teacher skilful in diagnostics, and a practical, rational therapist. Dr. Forcheimer says: "The great advances that can be recorded in our period are found in prophylaxis. In prophylaxis, especially in infective diseases, results are obtained which a short time ago would have been considered impossible. The greatest enthusiast would have deemed it incredible, for instance, that the time would ever come when Havana could quarantine against Key West in yellow fever. Much more remarkable, however, is the rendering sanitary large tracts of land which were uninhabited before, thus giving more and better chances for life and health to more human beings."

#### AGE OF ADVANCEMENT

We are living in an age of wonderful advancement. We see progress on every hand. One of the most important to us has been the development called anaphylaxis, out of which has come our serums and antitoxins. The use of thyroid gland for myxedema, and antitoxins for diphtheria and typhoid, speaks a wonderful advance, especially when we remember that during the fiscal year 1913-14, only three cases of typhoid fever are reported for the U. S. Army, and without a death; that smallpox has been modified



until it is no longer feared; and that tetanus and other infectious diseases by the use of antitoxins are robbed of their terrors. Many of the theories worked out in laboratories have been discarded, but the "human theory" of Ehrlich and the "cellular theory" of Metchnikoff are withstanding the tests of time and investigation.

We also see what practical hygiene has done. In Havana they have not, for several years, known what yellow fever means. The Panama Canal was only made possible by first establishing the most rigid sanitary measures. In the trapping and killing of 350,000 rodents in New Orleans, and by fumigating and rat-proofing cars and ships, the bubonic plague was kept down to thirty human cases in that city, and the spread of the plague prevented. In the prompt measures of quarantining against the hoof and mouth disease in cattle, there has been abated what threatened to be a very serious matter.

When we recount the wonderful, almost incredible advances in surgery during the past twenty-five years,—I can remember when a laparotomy was considered only as a last resort,—it would seem the last word had been spoken, and yet advances in surgery, however well we may think of them, must not be considered as entirely due to that branch, for, indeed therapeutics has played, even there, a most important part. Ether and chloroform, we must admit, have revolutionized surgery within the past sixty years. And corrosive sublimate, carbolic acid, and iodine,—to say nothing of soap, water, and brush,—have revolutionized it again within the time of every man present here today. Surgery, with the wonderful invention of instruments of precision, laboratories, and radiography, has made rapid strides. The technic of different operators, individualizing them in certain fields of operative work, the advancement, particularly, in bone-surgery, and the carefulness of specialists in general, have reduced the mortality in surgery to a minimum. I desire here to call attention to the fact that the bulk of surgery is minor, and presents a field for improvement, for, while it is often neglected, yet it is the only one into which the average practitioner will ever enter and is really the field in which a goodly number of surgeons find the majority of their patients. It is little wonder, then, that the physician untaught in this important work fails to achieve the best results. Someone has said, more bad surgery is performed on the hand than upon the abdominal organs. The first aid to the injured is frequently

the most important, for often open wounds are infected by handling. For scalp and lacerated wounds generally a liberal application of iodine is the only thing necessary at cleansing before removing the patient to a hospital. If there is the slightest indication for its use, 1,000 to 2,000 units of tetanus antitoxin should be given subcutaneously. A life may be saved by this precaution.

Another field in surgery to which reference may be had, is fractures. Here we often see the defect uncorrected and the bread-winner incapacitated. I need not go into the subject further than to suggest that surgeons who are often successful in other fields, are sometimes miserable failures when it comes to working on fractures. But with the x-ray for diagnosing and the open method with plates in the treatment, much better work is being accomplished. I believe I will be pardoned for saying that the man of the day in this realm, is Dr. John B. Murphy, whom I regard as the greatest clinical teacher living.

Surgery has advanced to that degree where the most delicate as well as major operations are performed with such skill that the element of danger with a good operator is reduced to a very small percentage. But when we have considered everything, that which produces the best results is the combining of the work of different specialists, styled by that remarkable teacher and operator, Dr. Arthur Dean Bevan, as "team-work." "Border-line" is becoming very popular and wise council often determines whether a case is medical or surgical.

What of the general practitioner? He has often the first insight into the case, is the first consulted, and, not infrequently, a life depends on an early correct diagnosis by him. It is not always possible to decide just what the malady is. You need not feel lonesome over that fact, for the best frequently find themselves in the same condition, but for humanity's sake let me urge upon you, when uncertain, to be honest with your patients, and send them somewhere where you believe they can find out. Permit me to say, once for all, that I do not agree with the sentiment that the only place where a diagnosis is possible is in the hospital; however, we admit that often a well-equipped hospital affords better facilities than are usually found in the average practitioner's office. Dr. J. N. Hall, in that splendid work of his just published, on "Border-line Diseases," says, "Diagnosis is often impossible for the reason that the signs and symptoms in the given case have not developed enough to furnish sufficient

basis for a diagnosis." He strikes a key-note when he says, "In no department of human endeavor does the element of sound judgment enter to a greater extent than in medical diagnosis."

The day of empiricism and quackery is passing. We are entering upon an era of scientific medicine. We see the dawning of a splendid millennium of medical and surgical knowledge. Dr. W. C. Gorgas, Surgeon-General, U. S. Army, says, in his report submitted to the Secretary of War, Sept. 1, 1914: "The great reduction in the amount of preventable disease foreshadows great economies to the Government as practical application is developed. Until comparatively recently the duties of medical officers were almost entirely confined to the care of the sick and wounded. In keeping with modern tendencies, specialization has developed and to their former duty is now added that of sanitary science with the practice of preventive medicine in the field and garrison, the handling of the sick and wounded in campaign, and the various specialties of the civilian physician and surgeon. All this requires preparation and training unknown in past years."

One of the essential things is for medical men to get closer together; and I know of no better way than through medical societies. There never were such opportunities for advancement as the present time. A medical man is no longer looked up to because he holds a secret remedy or nostrum, but rather because he is a scientific gentleman who stands for the betterment of mankind generally. Nothing this Association has ever done, in my opinion, counts so much as the effort made the past year to get all reputable physicians into the district, or component, societies. Medical gentlemen ought not to be at variance with each

other. Our interests are in common. Let us remember that there are no set rules of ethics, but that the Golden Rule always applies. There never has been a time when we have so successfully knocked at the doors of our legislative halls in the demand for better public-health laws as now. Men are beginning to recognize that the right to enjoy good health is as necessary as to own property; that it is a crime to poison men in mines and mills, to pollute water, to adulterate food, transmit disease, and place tasks upon school children which they are not physically able to perform.

Ever since the time of Hippocrates there have been great physicians. We have them now, and others are still to follow; but, as in the past, there will be reflected in each one a strong personality that will only be lost sight of as it blends with others equally as great along different lines, and the united efforts produce results better than has yet been known. Physicians will be specially trained in public-health matters. The public will be instructed how to live that sickness and accidents may be largely avoided. I believe men unnecessarily grow old. President Wilson said recently in an address to the Y. M. C. A. at Washington: "The only men who serve the world now are young men, and men who never grow old,—men in whose system the steam goes strong all the time, and who do not get so stiff that their machinery buckles up."

It will be the duty of our successors to provide for man a prophylaxis, established here in the midst of which will be a beautiful bubbling spring, furnishing healing of which the nation may drink and live, and, living, make the world better.

## SURGICAL PATHOLOGY OF THE PROSTATE\*

By E. S. JUDD, M. D.

Mayo Clinic

ROCHESTER, MINNESOTA

The prostatic gland originates from five independent groups of tubules, which begin to develop about the twelfth week of intra-uterine life. There are from twenty to seventy of these tubules, which are evaginations from the mucous membrane of different areas in the prostatic urethra. In the beginning of their development they are formed into five distinct groups, each

comprising a definite lobe of the prostatic gland. The middle lobe lies between the bladder and the ejaculatory ducts, under the floor of the urethra. In rare instances when this lobe is absent the tubules from the two lateral lobes may be joined in the midline. The median lobe is made up of nine or ten large branching tubules on the floor of the urethra between the bladder and the ejaculatory ducts. In its development, the middle lobe is an independent structure, though it is

\*Read at the 46th annual meeting of the Minnesota State Medical Association, St. Paul, October 1 and 2, 1914.

not separated by a capsule from the lateral lobes. There has been much argument on this point. Lowsley,<sup>1</sup> Griffiths,<sup>2</sup> Tandler and Zuckerkandl,<sup>3</sup> and others believe that the middle lobe is independent, while Pallin,<sup>4</sup> Jores,<sup>5</sup> and others believe that the middle lobe is always formed by ingrowths from the lateral lobes. That any one of them may enlarge without involvement of the others there seems to be no question; and many believe that this could not occur in the median lobe if it were a part of the lateral lobes.

The lateral lobes, one on each side, lie at the side and back of the urethra. The tubules of the lateral lobe originate in the prostatic furrows and from the lateral walls of the urethra. There

the seat of troublesome adenomas. This, however, is very unusual.

The subtrigonal glands and the subcervical glands of Albarran, which are rarely seen, have not been of great clinical importance in our experience. (Figs. 1-4.)

#### ADENOMATOUS HYPERTROPHY

Eliminating inflammations, the most common lesion occurring in the prostate is adenomatous hypertrophy, which is reported to occur in over 34 per cent of men who reach sixty years of age, though it is symptomless in 15 per cent.

Wilson and McGrath,<sup>6</sup> from a study of 387 specimens of prostatic hypertrophy, concluded that the condition is not a true adenoma formation. They found that fibro-muscular stroma is almost always increased in volume. If it is in-

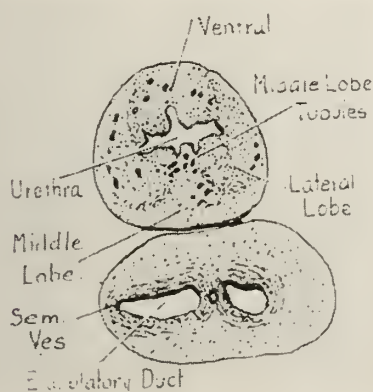


Fig. 1. 7.5 cm. Human fetus, three months, x 20. (From Lowsley, "The Development of the Human Prostate Gland with Reference to the Development of other Structures at the Neck of the Urinary Bladder.")

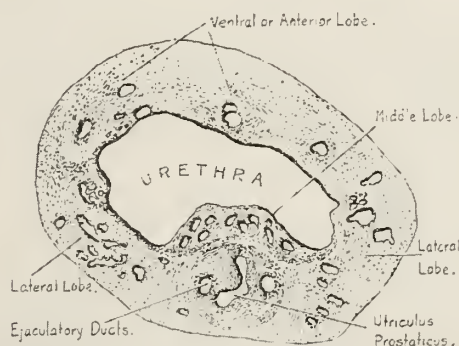


Fig. 2. 12.5 cm. Human fetus, four months, showing rather definite separation of the middle lobe from the lateral lobes. (Ibid.)

Fig. 2. 12.5 cm. Human fetus, four months, showing rather definite separation of the middle lobe from the lateral lobes. (Ibid.)

are about forty tubules in these two lobes, making up the greater part of the base of the prostate. The lateral lobes are separated from each other by the anterior lobe, the urethra, the middle lobe, and the ejaculatory ducts. They are separated from the posterior lobe by a definite fibrous capsule.

The posterior lobe lies back of the urethra and the ejaculatory ducts. This lobe is also an independent structure made up of tubules originating in the floor of the urethra below the openings of the ejaculatory ducts. These tubules are definitely separated from all other parts of the gland, and are the part most prominent on rectal palpation.

The ventral lobe is formed from the tubules which evaginate from the anterior wall of the prostatic urethra. It is fairly large in the embryo though usually decreasing greatly in the early weeks. The lobe may persist, and later become

creased in proportion to the parenchyma, the gland is increased in density. This has been sometimes designated scirrhus, but has nothing in common with true scirrhus, since it is not scar-tissue. It is not to any great extent muscular, but is most markedly an increase of the fibrous-tissue element. When a fresh hypertrophied prostate is sectioned grossly the parenchyma, if increased to any considerable extent, bulges above the cut portions of the stroma, usually presenting a number of prominent whitish nodules. Between these are yellowish or yellowish-red more succulent areas, which on slight pressure exude a cloudy yellowish juice.

The degree of development of the adenomas varies markedly. There may be a single adenoma and fibrous and muscular tissue; or there may be a great many small adenomas, and a very little fibrous tissue. At times the most complete closing of the urethra and the most marked



symptoms will be produced by a very slight enlargement; and, again, a considerable enlargement may not cause symptoms or distortion of the urethra.

In reviewing experiences in our clinic and the material at my disposal, adenomatous hypertrophy

involved. They also state that "prostatectomy" is not a proper term, as the prostate is not removed, but simply the tumors from the gland. That the prostate is not entirely removed has been proved in several instances by making sections of the remaining capsule. In our experience this capsule invariably contains prostatic tissue. (Fig. 5.)

Hypertrophy of the posterior lobe need not be considered, since it is seldom, if ever, seen. Cancer nearly always, if not always, begins in the posterior lobe. This lobe is absolutely separated from the rest of the gland by a firm fibrous septum. I believe that the adenomas in the prostate bear the same relation to that gland that the adenomas in the thyroid bear to the thyroid. In performing prostatectomy, the adenoma is en-

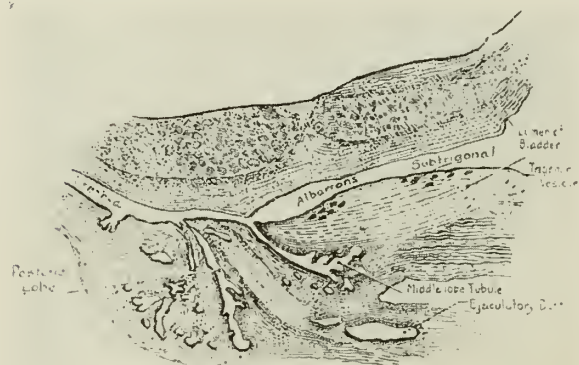


Fig. 3. 16 cm. human fetus. Prostate.  $\times 15$ .

Fig. 3. 16 cm. Human fetus. Prostate,  $\times 15$ . (Ibid.)

would seem actually to occur in the lateral lobes, as well as in the median lobe, of the gland. One unquestionable case was observed in which the

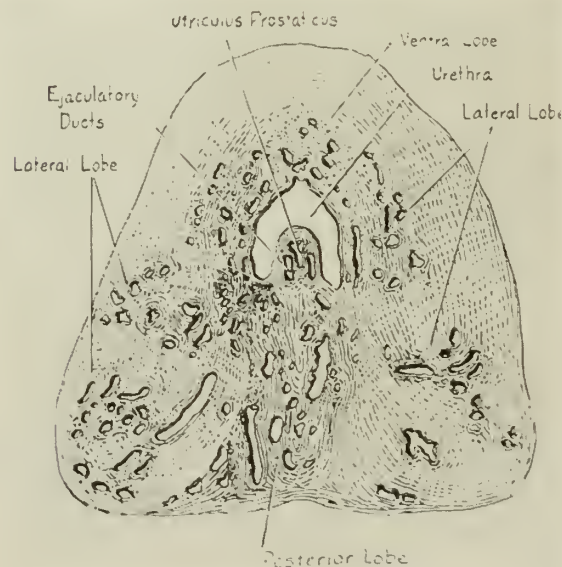


Fig. 4. 27 cm. Human fetus, seven and one-half months,  $\times 14$ . (Ibid.)

obstruction was due to a single adenoma in the anterior lobe. In this case there was no change in the median or lateral lobes.

Tandler and Zuckerkandl<sup>3</sup> advanced the theory that the process invariably began in the median lobe, and that the median lobe was the only one

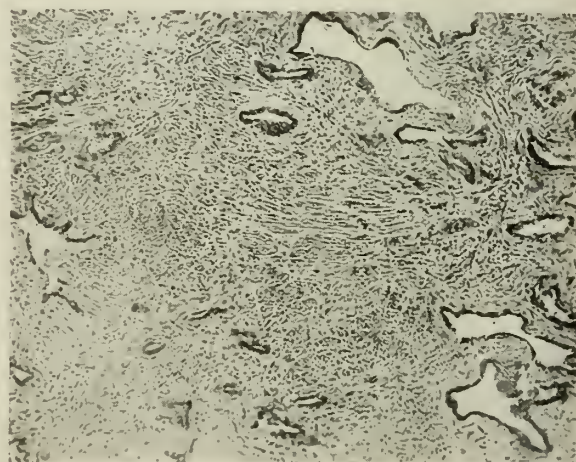


Fig. 5. Section through the capsule, left, following the removal of adenomas from prostate, showing compressed prostatic tissue.

tirely removed, and with it the part of the prostate on the vesical side of the adenoma. The part of the lateral lobes nearest the posterior lobe is not ordinarily removed in benign cases. By the growth of the adenoma the prostatic tissue is compressed into a firm capsule, sections of which show glandular tissue.

#### CARCINOMA OF THE PROSTATE

There can be no question that carcinoma of the prostate is usually, if not always, primary in the posterior lobe. If the carcinoma exists alone there may be few, if any, urinary symptoms until late because a primary carcinoma is usually small, and, extending in the lines of least resistance from the posterior lobe, passes beneath the trigone along the seminal vesicles by a process of infiltration, and does not in the early stage project into the ureters or bladder.

In about 50 per cent of the cases of carcinoma an associated hypertrophy exists; and in the early stages these processes are entirely separate. The obstructive symptoms are caused by the enlargement in the median and lateral lobes. This enlargement, which is composed of adenomatous hypertrophy, may be enucleated from the gland without disturbing the malignant process in the posterior lobe. In certain cases the entire prostate is carcinomatous; and it is impossible to

hind the capsule, which separates the lateral and posterior lobes, though, as the malignant process extends, it breaks through this capsule into the benign hypertrophy. In making a suprapubic enucleation in supposedly benign cases, if the adenomas are usually attached at any point posteriorly, it is well to have sections made of this attached part as soon as it is removed; and, if it shows malignancy, the posterior lobe should also be removed.



Fig. 6. Shows the prostate bulging into the bladder, and pushing the catheter against the anterior wall.

determine positively that portions of it did not represent lobules previously hypertrophied which have become carcinomatous. In these cases, the prostate is much larger than when the posterior lobe alone is involved, though the same process of infiltration of the surrounding tissues occurs, and there is no definite capsule of demarcation. In these cases the seminal vesicles are always involved.

When benign hypertrophy and cancer exist together, the cancer is usually well confined be-

#### MALIGNANT DEGENERATION

In studying 700 specimens of prostates removed at the Mayo Clinic, Wilson and McGrath<sup>6</sup> found many areas of suspicious change of the hypertrophied process to malignancy, though in no instance was there a positive case showing that benign hypertrophy had become malignant. Young<sup>7</sup> reports that in over 300 specimens removed by prostatectomy he has not found, after careful examination, a single case in which there was an area of cancer in the middle of a hyper-



trophied lobe, lobula or spheroid,—that is, was no case in which cancer or cancerous degeneration was present in the interior of an hypertrophied lobe. Whenever an hypertrophied lobe showed cancer within its capsule, it was always found infiltrating the lobe through the capsule from an area of much more extensive and evidently earlier carcinoma. Albarran and Halle<sup>5</sup> mention a condition which they termed "epithelioma adenoid," and they thought this due to a malignant degeneration in tissue previously hypertrophied.

neuralgias, caused by infiltration of nerves, are the only symptoms. The source of the trouble in these cases is easily overlooked. Because of its infiltrating character, the growth is enucleated with great difficulty; and operation gives permanency of relief only in the very early cases.

#### THE OPERATIVE TREATMENT

The first effect produced by enlargement in the prostatic gland is the deformity of the gland itself. If this deformity is to have a deleterious

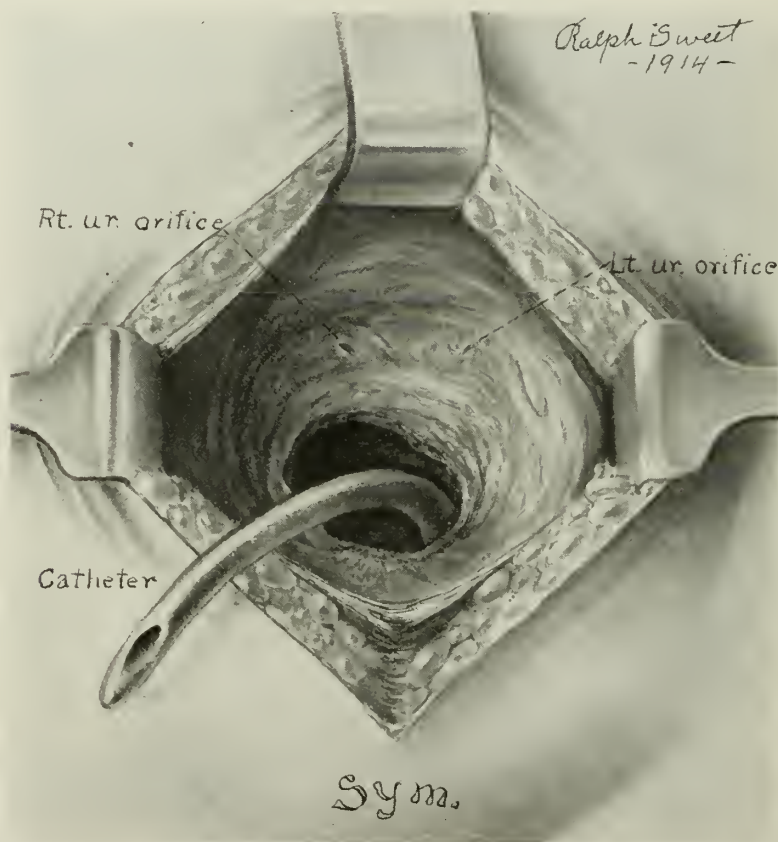


Fig. 7. Adenomas have been enucleated. The catheter pulled out through the abdominal incision.

They found this condition present in 14 per cent of their clinically and macroscopically benign cases.

Carcinoma of the prostate is probably much more common than is generally believed, because it is infiltrative, and not ulcerative, in character. Many of these patients die from metastatic carcinoma without the location of the primary focus being discovered. Ulceration into the mucous membrane of the bladder or symptoms of any kind develop late. Often sciatica and pelvic

effect other than its presence, it will soon interfere with the mechanism of emptying the bladder, which in turn will react on the other genito-urinary organs, especially on the bladder and kidneys. The first and most important part of the treatment consists in overcoming, as much as possible, these secondary changes. If this can be done satisfactorily, the mortality following the operation will be very materially reduced.

The knowledge gained by the more recent investigations regarding the part of the gland most



often affected, and its relation to the bladder and sphincter muscles, has decided most men in favor of the suprapubic or transvesical operation. This operation insures a perfect functional result which is most important in these cases. The serious disadvantage in the suprapubic operation over the perineal is, that the opening into the bladder must be made through loose cellular fat tissue in the space of Retzius. This tissue once becoming infected is difficult to drain; and, while

nephritis. Wade also states that an analysis of 68 fatal cases occurring in the hospital with which he is associated, shows similar results, and strongly indicates that the commonest cause of death after a suprapubic prostatectomy is septic absorption arising out of the wound inflicted.

We have recently endeavored to develop a technic in performing the suprapubic operation which minimizes the possibilities of infection in this space.

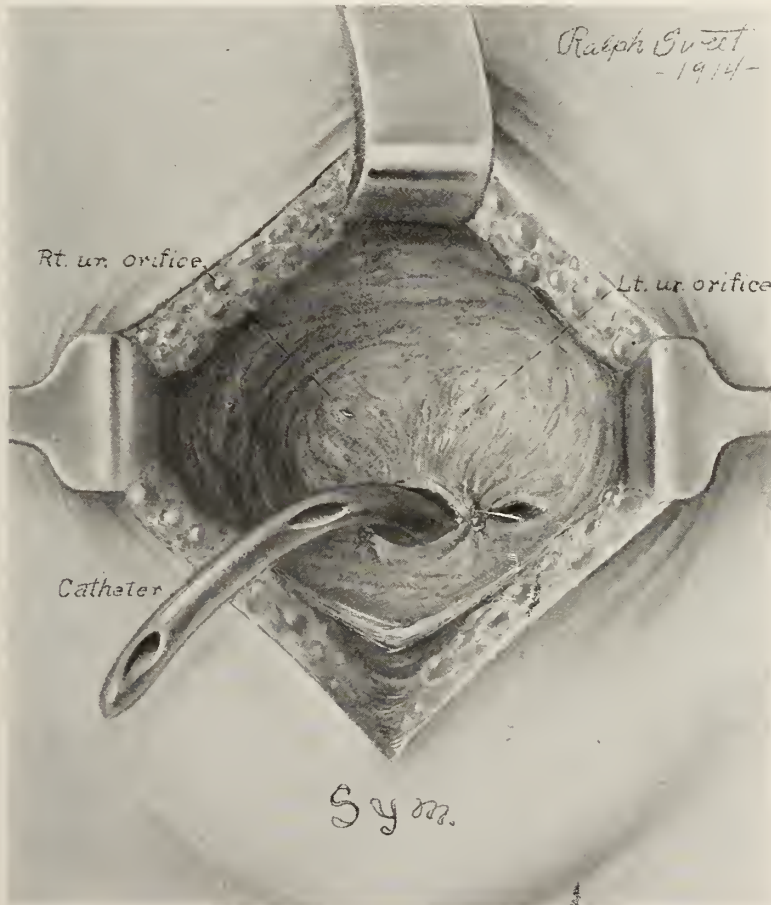


Fig. 8. Prostatic capsule sutured. Opening in side of the catheter just above the urethra.

the infection is not virulent, it may prove very serious in a patient whose kidneys are already badly damaged. The importance of avoiding infection in this space is emphasized by Wade<sup>9</sup> in a recent article. He quotes Page from the records of St. Thomas Hospital, who said that of 15 fatal cases examined by him 10 died within a week of operation, the majority from acute local infection or from an acute suppurating

#### TECHNIC

The bladder is cleansed and emptied, and the catheter is left in place. I believe there is less danger of infecting the suprapubic space by opening into a dry, clean bladder than into one distended with wash water. (Fig. 6.) The hypertrophied process is enucleated in the usual way, and the capsule immediately packed with gauze. The wound in the bladder is then retracted open by three Walker retractors. The

catheter is drawn out of the suprapubic opening, caught by a clamp, and held to one side. (Fig. 7.) The gauze is removed from the prostatic capsule, and the bladder edge of the capsule is sutured with firm plain catgut. (Fig. 8.) No attempt is made to catch the torn-off end of the urethra; but the needle is passed as deeply as possible into the prostatic tissue. By carefully sponging and placing the sutures at the bleeding points, it is possible in many cases to con-

the expelling of clots was very painful, and, in a few cases, necessitated introducing a suprapubic tube into the bladder. This method of leaving the catheter projecting through the suprapubic wound in the bladder is a safeguard against clotting and serious spasm. As soon as the urine is free from blood, the catheter is drawn into the bladder, where it is left for a number of days. In many cases there is no urinary leakage at any time. In the few instances in which leakage occurs, the urine runs over a surface already granulated, and these granulations prevent infection in this space.

Radical operations for carcinoma of the prostate have not been entirely satisfactory, principally because it has been impossible to thoroughly eradicate the trouble without destroying the neck of the bladder and possibly injuring the anterior wall of the rectum. Palliative operations for cancer of this region are sometimes very satisfactory. I believe, however, that they should be done only when the tumor interferes with emptying the bladder.

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#### DISCUSSION

DR. OSCAR OWRE (Minneapolis): I am glad to hear and to have the opportunity of expressing an appreciation of Dr. Judd's clear presentation, and interpretation of the surgical pathology of the prostate. While one may add nothing, there is always a sense of pleasure in emphasizing those facts which one has found, in his experience, to bear out the interesting points in a paper.

From an embryological standpoint there may be some dispute as to the separate origin of the middle and lateral lobes; but at birth they are thoroughly fused, and no separation can be recognized. Dr. Gerathy has shown specimens where adenomatous growths began in the lateral masses, and were very evident before any such change was at all demonstrable in the middle lobe. So the theory of Tandler and Zuckerkandl, now so generally accepted, is unquestionably open to criticism.

Homes and Albarran's groups of glands, when they undergo adenomatous growth, furnish a most enjoyable field for cystoscopic study. Some five months ago I cystoscoped a man fifty years of age who was suffering from partial retention and urinary disturbances

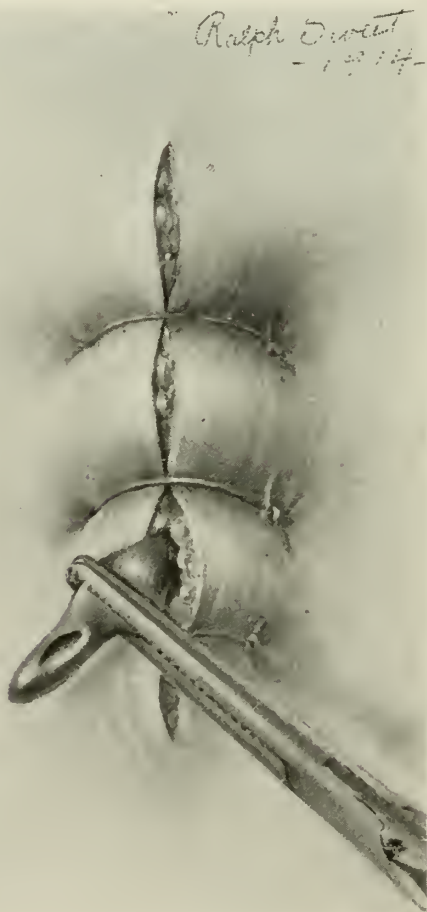


Fig. 9. The catheter left outside of wound, which has been closed except where the catheter comes through.

pletely control the oozing. The clamped end of the catheter is left out of the suprapubic opening in the bladder, and the bladder closed tightly around it. (Fig. 9.) A good-sized hole is cut in the side of the catheter near its entrance into the urethra.

In a few cases in which the oozing was apparently completely controlled at the time, there was some secondary bleeding. This was not serious from a standpoint of loss of blood; but

somewhat suggestive of stone. There was no prostatic enlargement per rectum. The cystoscope (a Nitze type) slipped into the bladder through a very large urethra. Attached by a distinct pedicle to the trigone was a smooth tumor about the size of a hazelnut. It could be pushed from side to side and into the bladder. I suggested that this was an adenomatous growth arising from one of Home's glands. It was removed, and the patient made a complete recovery. There was no hypertrophy of the prostate proper. On several occasions I have seen these adenomata arising from Albarran's group close to the vesical neck. A short time ago I removed one of these at the City Hospital. It was but a single adenoma responsible for the obstruction. The time is almost at hand when by refined cystoscopic methods we may be able to ascertain beforehand just what growth produces the obstruction, and to direct surgical procedure accordingly.

There is one symptom associated with prostatic hypertrophy which I have encountered on three occasions, and one that I am particularly anxious to have Dr. Judd speak about. It is hematuria. Three years ago I saw a patient from the country with grave hematuria. He bled from the urethra; and the bladder was full of clots and blood. Another which I examined cystoscopically for Dr. Rockford, had severe hemorrhages four or five times. He did not like to remove the gland until he was certain that the bleeding was prostatic. The ureters were catheterized, and the urines were normal. There was no tumor except the adenoma, and the blood could be clearly seen oozing into the bladder from the prostatic urethra. The third was a man seventy-two years of age. Nothing would stop it, and a rapid prostatectomy succeeded immediately. He had not been catheterized, and the bleeding began spontaneously.

None of these were malignant; and the bleeding was not due to instrumentation. The prostates were all very large and soft. The first two men are alive and well; the last died of nephritis five months later. The hemorrhage was alarming in all of them; and there was no time for the usual preparation so necessary before prostatectomy.

Stress is laid upon hematuria by many writers as a sign of malignancy. This, I am sure, is not true, for the urethra and bladder resist carcinomatous invasion for a long time. Pain is by far more significant. It is independent of urination, and is felt in the back, groin, and down the legs. I have had the pleasure of examining one of Dr. Judd's patients upon whom he removed the obstructing portion of a carcinomatous prostate some eighteen months ago. The patient's only complaint is pain radiating down the legs to the toes. An important point is the increase of tissue felt between the sound in the urethra and the finger in the rectum. In advanced cases there is an induration at the base of the bladder and prostate along and beneath the vesicles termed by Young the "Intervesicular Plateau."

Suturing of the capsule after adenomeotomy sounds rational; and I am going to do it when necessary. I want to ask Dr. Judd if he has ever encountered hem-

orrhage in spite of suturing, and also if he has found it necessary to re-insert a catheter shortly after operation, and then found that it was difficult to do so because of the compression from the suture.

DR. E. S. JUDD (Rochester, closing): Regarding Dr. Owre's point about the emergency operation for bleeding prostates: I have operated on two cases in which we were unable to control the hemorrhage. These patients came because of bleeding from an ulceration of the mucous membrane covering a median projection. Such patients usually have papillary carcinoma of the bladder.

In the pictures that I showed, the catheter is a through-and-through one. It is passed through the urethra before the operation is begun, and after the adenoma has been enucleated it is drawn out through the suprapubic wound. The bladder is then closed completely around the catheter. In removing the catheter after suprapubic prostatectomy we ordinarily have no difficulty in re-introducing one. If there is serious difficulty, the finger may be pushed through the wound into the bladder, and a large tube introduced. I have done that two or three times. Occasionally the bladder will be apparently dry when the operation is finished; but slow hemorrhage may occur, and in ten or twelve hours there will be enough blood clots in the bladder to prevent the catheter from draining. I did not mean to imply that we were absolutely able to control hemorrhage in all cases by the use of sutures. They are a great help. Freyer, in his prostatectomy work, never uses anything to control hemorrhage; he introduces a tube and does not use a pack. In several instances after suturing the capsule, we have been unable to control hemorrhage, and have packed around the capsule.

DR. PLONKE: How do you pack there?

DR. JUDD: Pack within the capsule around the catheter. We are trying to get away from that technic. The mortality in those cases, according to practically all reports, is from infection of the suprapubic wound, and, if the wound can be handled in a way to avoid that infection, the mortality will be reduced. But there are certain cases in which it is necessary to pack the capsule because of bleeding. In the preparation of cases we find some patients in whom the catheter can be kept in permanently. Some we catheterize, starting in once or twice a day, and then working up to every three or four hours in the preliminary preparation. I believe it is important that patients should become accustomed to having the bladder empty before the operation is done. The residual urine must be drawn off, that is, undoing the secondary changes brought about by the hypertrophied prostate. These patients are catheterized carefully at first to see if they stand it; and, if they do, we introduce a catheter, and leave it in two or three weeks. It is usually necessary to take the catheter out once a week, and put in a fresh one. If the urethra is sensitive, and the patient is not able to stand it, suprapubic drainage is made as a preliminary step to the prostatectomy.



# THE JOURNAL-LANCET

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## AMERICAN MEDICAL ASSOCIATION MEETING

The recent meeting of the American Medical Association at San Francisco, was not very well attended; however, the registration was somewhat larger than that at Los Angeles four years ago. The entire number registered at San Francisco was 2,200, of whom one-half came from the State of California, leaving the remaining 1,100 scattered over the United States; but the majority came from west of the middle line. Very few easterners were in attendance, presumably on account of the great distance, and their dislike for long train trips, and indifference as to the program.

In spite of the limited attendance, the two days' meetings, Tuesday and Thursday, were very successful in most of the Sections. Of course, the Section on Surgery was predominant, and the central figure was Dr. W. J. Mayo, who read a paper on cancer. It was said that this meeting was best attended of all the Section meetings. The other Section meetings were more or less well cared for. The Section on Neurology had an unexpectedly large attendance on the first day and a reasonably good attendance on the second day.

Wednesday, June 23d, was the day on which the popular meetings were opened, in which various subjects were discussed by experts for the benefit of the public. The well-known diseases that commonly appear in the public press, and the common communicable and infectious diseases which are most frequently discussed by lay people, were dilated upon and explained by men of renown.

The meetings were held in one of the large halls of the Civic Auditorium, and on one or two occasions during the writer's attendance, there were probably a thousand people in the room. A meeting of this kind is going to bring the profession and lay people much closer together than anything else that has been attempted, unless it is the Sunday meetings at the various churches, which were not in evidence at San Francisco. Perhaps the Committee felt it was impossible to reform such a great city on a bright sunny day.

One Section that deserves mention, was the Hospital Section, which was very well attended by men from all over the country. This is a new Section, recently created, and is taking its place as a prominent factor in American medical matters. Hospital instruction, hospital management, hospital maintenance, are all interesting, not only to the expert, but to the average doctor, who has stored up in the recesses of his mind a hope that he, some day, may have a private hospital.

The newspapers treated the Association meetings with marked indifference. They published only here and there small items, or devoted parts of columns to the work of the meeting; and, rather strangely, the members of the medical profession of San Francisco were not keenly interested in the meeting itself; that is to say, they were not personally present, except a few men. Probably their work had all been done before the meeting began. Arrangements, of course, had been made for meeting-places, but it was rather noticeable, and particularly in the office of the *Journal's* business department, that the San Francisco doctors were not very much excited over the meeting.

The social side of the Association was a minor feature, as it should have been, for most of the visitors who had any time to spare, were only too glad to go to the Exposition and to visit the celebrated cafes of San Francisco.

Most of those who went from the East stopped off at San Diego, or made a special run down there, to see its gem exhibition, and to comment

most favorably upon its location, the symmetry and beauty of its buildings, and the wonderful arrangement of grounds, trees, shrubs, flowers, and things that make a country beautiful and entrancing. Palms and rare trees from South America grew on the sides of gorges, and an enormous bridge spanned a canyon, all within the Exposition grounds.

In San Francisco, the beauty of the Exposition lies in its colorings of exteriors, courts, hallways, and, above all, in the new method of indirect illumination. If one has not seen the San Francisco Exposition at night, it is impossible to imagine its beauties. The buildings in themselves are wonderfully toned, beautiful architecturally, and appropriately decorated with statues and scrolls, which are in absolute harmony with the construction.

Dr. Rodman of Philadelphia addressed the first combined meeting in the Columbia Theater. His address was rather long, but very interesting, as it dealt largely with the pre-educational necessities of medical men. He suggested many new innovations for entrance examinations in medical schools, and dwelt upon the necessity of grounding the applicant in a knowledge of modern literature, good English, and the languages.

Dr. Rupert Blue, at the head of the United States Public Health Service, was elected president for the ensuing year—a compliment to Dr. Blue, not only for his ability, but from the fact that the San Franciscans appreciated the great work that he did for them during the siege of bubonic plague.

The next meeting of the Association will be held at Detroit, Michigan.

It is hardly probable that the Association will meet in California again for a good many years. It is really too far to go, and does not attract a sufficient number from the different states. A more central point is an advantage, but the meetings at Atlantic City usually bring out a large number of western Delegates and Fellows.

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#### RAILWAY MECHANOTHERAPY

Having just returned from the West, after seeing and appreciating many of its beauty spots and its cold and delightful climate, we are constrained to add that the return trip on a newly constructed railway is not altogether one of the rare pleasures in life. The train-service is more or less inadequate, because the road is new; business is poor and passengers are comparatively few; and the road is trying to develop a new

territory. That the road has succeeded in penetrating the extreme Northwest, is a measure for congratulation; for it has opened up many of the beautifully wooded mountain regions, rolling prairies, and harvest fields that will be attractive a few years hence. Just now the extreme Northwest is going through a very critical epoch in its existence; and it is not an unkindly criticism to say that the Pacific West is poor, that business is bad, and that it will probably be a long time, many years, before it will get over its boom and its newness.

And this leads us to the mechanotherapy idea.

Germany, with all her wonders and with all her faults, if she has any of the latter, would not permit an engineer over this western road to drive one of her trains. Germany has taught its engineers to start a train very quietly and very slowly to avoid disturbing the passengers. Many of the engineers of the West, and some of the East too, doubtless, have, apparently, been instructed to start with a jerk with the brakes on; and, after the train is in motion, to run as slow or as fast as they please, usually slow.

The engineer goes through this beautiful country, gazing at the scenery until, suddenly, he appreciates he is drawing near a station. Forgetting for a moment his duties, he applies every brake on all the train at the same moment. The result is a horrible jerk, a twist of the body, a throwing forward of the human frame, and then a relaxation for a moment, and then the engineer again puts on another brake or two, or perhaps fifty, and the second jolt is received. This may all be very well from the engineer's point of view, and partly due to the road's equipment, but it is disgracefully hard on the passengers, and one feels that this form of joint therapeutics is even harsher than the Zander method, which, the writer is reminded, conforms almost entirely to the method of the new school of chiropractors, in which the attempt to reduce a supposedly dislocated joint by a sudden jerk, and a sudden snapping of ligaments, or, as they say, bony surface, when the victim is told that his spine is entirely in position. We have seen this method practiced by these new cults, and we imagine that the feeling is almost identical. If one is in need of joint-exercises or of some kind of forced joint-manipulation, and is unable to secure the services of a chiropractor, it would be well for him to take a trip on this western road, for he would get all his joints limbered up and get all muscle-attachments tense, tender, and taut. After one of these trips on a new road of

this kind, one can well appreciate the feelings of a patient after his first treatment by the hands of a blacksmith chiropractic.

On the whole, the writer is unable to say whether he would recommend it with confidence; certainly not for a week or two until he sees what the ultimate result is.

#### MINNESOTA PUBLIC HEALTH ASSOCIATION—ITS APPEAL TO THE MEDICAL PROFESSION

Because of forced economies the Minnesota State Board of Health and the State Tuberculosis Commission are not able this year to carry on their usual educational propaganda; and therefore this indispensable work is thrust upon the Minnesota Public Health Association, if it is to be done. This Association is dependent upon voluntary contributions; its means and membership at present will not enable it to do the work as it should be done. Out of this apparently unfortunate position, good may come, for there is work which money cannot get done. Not a little of the work of the Association is of this character, and hence the present appeal of the Public Health Association.

The Association's new Executive Secretary, Dr. I. J. Murphy, recognizing the importance of enlisting the co-operation of all physicians, makes a twofold appeal to them, which appeal grows out of the nature of the work. It is desirable to have the literature of the Association put into the hands of public-spirited men and women, who will thus become instructed in the value and necessity of better public-health conditions, in the city, the village, and the country. Such men and women can be reached effectively only through the family physician; and we earnestly ask why should not every family physician put before his patients this opportunity for them to perform a real public service—a real Christian service?

The Executive Secretary thinks—and we fully agree with him—that the family physician should read, more or less thoroughly, this literature, and thus prepare himself for more efficient co-operation with the Association. This, of course, means membership in the Association. The fee for General Membership is \$1.00; for Contributing Membership, \$5.00; and for Sustaining Membership \$10.00. We hope that a good many of our readers will, at least, take general memberships in the Association, and thus qualify themselves from the literature to do effi-

cient work in other lines, particularly in the up-building of local health associations, and in interesting the right men and women in their local work. The contribution of the membership fee will, of course, be appreciated by the Association; but this is an infinitesimal part of what any physician can do for the cause of good public health. It is his intelligent co-operation as a member that is needed.

### REPORTS OF SOCIETIES

#### MINNESOTA ACADEMY OF MEDICINE

The Society resumed its meetings at the Town and Country Club last month.

Two vacancies, one in St. Paul and one in Minneapolis, were filled by vote of the Society, Drs. H. T. Nippert and R. E. Farr, respectively, being elected. This leaves but two pending nominees, Dr. F. C. Schuldt, of St. Paul, and Dr. Arthur Strachauer, of Minneapolis.

Dr. Cross presented the following case:

A woman of 33 entered the hospital March 30, 1915, with the diagnosis of enteritis. She had been sick one month with fever, dizziness, and vomiting. Family history, good. Had measles in childhood. The bowels had been troublesome for the past three years; four to five movements daily. She also complained of insomnia, loss of appetite, and nervousness. Her present illness began February 25th with fever and dizziness; has been in bed since. Frequent night-sweats and emesis, headache for a few days previous to onset. Claims she has not felt quite up to normal since last fall. No nose-bleed. Been coughing for two weeks. Complaints of a pain in the back, and feels weak.

Upon physical examination, she is well nourished, face flushed, slightly cyanotic, apparently not suffering. Tongue, decidedly coated; sordes on the teeth. Crepitant râles over the base of both lungs. Abdomen, distended and tympanitic; spleen, palpable on deep inspiration; mentality, clear; pupillary reflex, active; knee-jerk, sluggish. Temperature: first week in hospital, from 102° to 104.4°; 2d week, 98° to 103°; 3d week, 98° to 100°; then went up to 102.4°. She was operated on, and the temperature came down to normal in about eight hours. Since the operation the temperature has not been above 99° at any time.

Laboratory findings before operation: albuminuria, plus; hyaline and granular casts occasionally; Widal reaction present (April 5th); blood,—hemoglobin, March 31, 80; April 19, 70; April 20, 70; leucocytes, 6,600, 4,100, and 10,000 on these dates.

An operation was performed after three weeks in the hospital, on April 20th.

Laboratory findings now are as follows: blood,—hemoglobin, April 23, 70; May 3, 75; leucocytes, 8,000 and 7,800 on same dates.

May 28th culture from the gall-bladder shows staphylococci and colon bacilli.



June 5th culture from gall-bladder shows tubercular bacilli. In the former culture the T. B. probably killed out by colon bacilli and staphylococci, the latter disappearing after drainage had been established.

Subsequent history: May 18th, after three weeks in hospital, patient began to complain of pain in region of stomach, and later of a general abdominal pain; vomited greenish fluid several times. Above symptoms appeared in the two days previous to operation.

Operation, May 20. The following points were noted: injected area on ileum near the ileocecal valve, several such areas along course of ileum. No ulcers. No perforations. Appendix, normal and movable. Stomach, normal. Gall-bladder, thickened, hard, unable to deliver, situated deep under costal margin; bound down by adhesions. The following were done: (a) mesentery to the ileum was sutured over injected area near ileocecal valve; (b) pelvic adhesions broken up; (c) omentum separated from adhesions; (d) adhesions to gall-bladder broken up; (e) gall-bladder opened. The mucosa of bladder was gone, and the cavity filled with a mucoid substance and fifty (50) stones and pus. Drainage tube inserted.

Patient is making an uneventful recovery.

Dr. Marx White related the history of a case somewhat allied to Dr. Cross's:

The patient, a woman, complained of pain over the sacro-iliac region. The tuberculin test gave no reaction. Some months later there appeared infiltrations to the right side of the uterus. Laparotomy was performed by Dr. Little. There was considerable fluid; uterus rather nodular; nodules that looked to be tubercular on the fallopian tubes. Both sides were involved. Clinically, it was decided that it was tuberculosis. The pathological examination failed to show any T. B.; mostly lymphatic, with numerous small cysts.

Dr. Litzenberg spoke of a case that came to the University Hospital with a diagnosis of extra-uterine pregnancy.

Operation was delayed, and the patient was transfused by Dr. Law. The hemoglobin was very low. At operation the ovum had aborted through the end of the tube, but there was also to be seen a ruptured point in the tube itself near the fimbriated end.

Dr. Mann gave the history of a case, the diagnosis of which is still undetermined:

The patient, a man, is a carpenter. He was seized with cramps and vomiting; there was obstipation. The symptoms were suggestive of lead colic, a blue line showing on the gums, and he was treated with plumbism in mind. Patient got better of the attack, but later came back with the same symptoms. It was discovered at this time that what was considered a blue line was not blue but black. No lead was found. The abdomen was opened. Over the promontory of the sacrum was found a large bunch of tissue that looked to be tuberculous. Also over the surface of the bowel were many small nodules of hazelnut-size. One of these areas was taken out and examined, but did not prove to be T. B. The patient was discharged today, better but not well. Diagnosis?

The first paper of the evening, "The Hemolytic Complement of Maternal and Fetal Blood,"

was presented by Dr. Fred L. Adair, and was followed by one on Cesarean section by Dr. Fred E. Leavitt. Both papers were discussed.

FRED E. LEAVITT, M. D., Secretary.

Adjourned until October.

## NEWS ITEMS

Dr. Geo. D. Rice, of Paynesville, has moved to St. Cloud.

Dr. W. F. Wiefe, of Milwaukee, has located at Bismarck, N. D.

Dr. Edith W. Stanford, of Aberdeen, S. D., has moved to New York City.

Dr. James Semple, of Grand Forks, N. D., has moved to Williston, N. D.

The American Medical Association will meet in Detroit, Mich., next year.

Dr. Nils Myklestad, formerly of Williston, N. D., has located at Minot, N. D.

Dr. W. A. Brand has returned to Redwood Falls after finishing a postgraduate course in the East.

Dr. J. C. Staley has returned to St. Paul after spending several months as army surgeon in France.

Dr. H. J. Robb, of Colton, S. D., has entered into partnership with Dr. T. T. Skogen at Flaudreau, S. D.

Dr. William Mattson, of Rochester, was married on June 24th to Miss Hazel Fletcher, of Seattle, Wash.

The contracts for the Sanatorium for Polk and Norman counties have been let. The total cost will be around \$55,000.

Dr. Joseph McKeon, a recent graduate of the State University, has become associated with his father, Dr. James McKeon at Montgomery.

Dr. J. S. Kilbride, for five years a resident of Watertown, S. D., has purchased his old practice from Dr. Merton Field at Canby, Minn.

Dr. Henry C. Aldrich, of Minneapolis, was elected president of the American Institute of Homeopathy at its annual meeting in Chicago the last of June.

St. Louis, Itasca, and Carlton County physicians had a midsummer meet in June, and it rained, and it rained. The doctors, nevertheless, had a good time.

Dr. Louis M. Field, a graduate of the Medical School of the University of Minnesota, has be-

come a member of the firm of Murdy and Murdy, of Aberdeen, S. D.

Dr. J. F. Roselle, of Spencer, S. D., died very suddenly the first of July. He at one time represented his county in the lower house of the State Legislature. Death resulted from heart trouble.

Dr. Charles A. Stewart, of Duluth, died last month, while on a visit to Minneapolis, from a stroke of paralysis, at the age of 67. Dr. Stewart had practiced in Minnesota for over thirty years. Of late years he confined his practice to surgery.

The Watertown District Medical Society of South Dakota has invited the Third District Society to be their guests at the midsummer meeting, to be held at Lake Kampeska on Tuesday, August 10th. Besides the regular program there will be a dinner and a round of sports.

The summer school at the University of Minnesota for graduate work in medicine, opened last week. The attendance is not what the opportunity suggests it should be, but this may be due to general conditions. We suspect it is due to a lack of knowledge concerning what is offered to the profession at the school.

The midsummer meeting of the Southern Minnesota Medical Association, at Red Wing on August 3d and 4th, will be one well worth attending. The scientific program will be unusually good, and the social side of the meeting will be made especially attractive. A cordial invitation is extended all medical men and their ladies.

Three more physicians have tendered their resignations from the medical staff of the University of Minnesota on account of the Mayo Clinic affiliation: Drs. P. A. Hoff and A. R. Hall, of St. Paul; and Dr. Geo. Douglas Head, of Minneapolis. Dr. Head is reported in the daily press as basing his resignation upon the so-called "silencing" resolution of the Board of Regents, which contains this clause: "That the best interests of the university require that the new plan for developing the graduate medical work of the university should not be opposed hereafter by any member of the faculty of the Medical School, but, on the other hand, should have the loyal support of all the members thereof." Dr. Hoff is also reported as saying that his resignation was based upon this resolution more than upon his objection to the affiliation.

#### WANTED

By an experienced physician, locum tenens work, or will purchase unopposed or lightly opposed practice. Address 235, care of this office.

#### POSITION OPEN

In first-class town in Northern Minnesota for both a physician and a druggist. Scandinavian preferred. Address 230, care of this office.

#### OFFICE WANTED

Physician wishes to rent offices with other physicians or dentist in a down-town office building in Minneapolis. Address 234, care of this office.

#### POSITION WANTED

By a young lady nineteen years of age, as assistant in physician's office. Have had experience. Can give best of references. Need a position very badly. Call N. W. Phone, South 175.

#### BEST CITY LOCATION

For a young doctor. Modern corner building; steam heat; electric lights; janitor service; two dentists in building; reasonable rent. Come and see for yourself. A. E. Simms, 331 14th Avenue S. E., Minneapolis, Minn.

#### LOCUM TENENS WANTED

Experienced physician and surgeon wishes locum tenens in, or very near, the Twin Cities for six months or a year. Have money to purchase if mutually agreeable. Very ethical. Speak German and Scandinavian languages. Would like assistantship with busy surgeon. Address 232, care of this office.

#### ASSISTANT WANTED

Wish an assistant at once in a general and hospital practice in Minnesota. Good proposition for a competent and energetic man. German and married man preferred. This is an exceptional proposition to one capable in surgical work. Address 238, care of this office.

#### PRACTICE WANTED

A general medical practice in a town of from 1,500 up, paying not less than \$3,500 cash, with a chance to do eye, ear, nose, and throat work and general surgery. Would like to get into Alexandria, Glenwood, Detroit Lake, Redwood Falls, or some other town of equal importance. Address 236, care of this office.

#### PRACTICE WANTED

Doctor thirty-five years old, married, a protestant, Mason, and Elk; good mixer, wishes a place in Minnesota or adjoining state. Has North Dakota, Missouri, and Idaho licenses. Would accept a locum tenens, assistantship, partnership, or any other good chance to get back and get busy. Address 237, care of this office.

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

[illegible]



## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian .....	1,258	1,112	2			1												1
Aitkin .....	1,719	1,633	1															1
Akeley .....			0															
Appleton .....	1,184	1,221	1															
Belle Plaine .....	1,121	1,204	2	1														
Biwabik .....		1,690	1															
Bovey .....		1,377	0															
Browns Valley .....	721	1,058	0															
Buffalo .....	1,040	1,227	0															
Caledonia .....	1,175	1,372	3	1														
Cass Lake .....	546	2,011	7	1														
Chisholm .....		7,684	1												1			
Coleraine .....		1,613	0												1	1		
Delano .....	967	1,031	1															
Farmington .....	733	1,024	1															
Fosston .....	864	1,055	0															
Frazee .....	1,000	1,645	0															
Grand Rapids .....	1,428	2,239	2			1												
Hibbing .....	2,481	8,832	10															
Jackson .....	1,756	1,907	3															
Janesville .....	1,254	1,173	1															
Kenyon .....	1,202	1,237	0												1			
Lake Crystal .....	1,215	1,038	6			1												
Litchfield .....	2,280	2,333	0															
Long Prairie .....	1,385	1,250	2															
Madelia .....	1,272	1,273	2			1												
Milaca .....	1,204	1,102	1															
Mountain Lake .....	959	1,081	1															
Nashwauk .....		2,080	1			1												
North Mankato .....	939	1,279	1															
North St. Paul .....	1,110	1,404	1															
Osakis .....	917	1,013	0															
Park Rapids .....	1,313	1,850	0															
Pelican Rapids .....	1,033	1,019	2							1								
Perham .....	1,182	1,376	4			1												
Pine City .....	993	1,258	0															
Plainview .....	1,038	1,175	0															
Preston .....	1,278	1,193	2															
Princeton .....	1,319	1,555	0															
St. Louis Park .....	1,325	1,743	0															
Sandstone .....	1,189	1,818	0															
Sauk Rapids .....	1,391	1,745	4							1								
South Stillwater .....	1,422	1,343	2															
Springfield .....	1,511	1,482	3															
Spring Valley .....	1,770	1,817	4	1		2												
Wadena .....	1,520	1,820	2			1												
Wells .....	2,017	1,755	0															
West Minneapolis .....	2,250	3,022	2					1										
Wheaton .....	1,132	1,300	2															
White Bear Lake .....	1,288	1,505	0															
Windom .....	1,944	1,749	0															
Winnebago City .....	1,816	2,555	0															
Zumbrota .....	1,119	1,138	2	1														
STATE INSTITUTIONS																		
Anoka, Asylum .....			5			1												
Faribault, School for Blind .....			0															
Faribault, School for Deaf .....			0															
Faribault, School for Feeble Minded .....			12		1	1								1				
Fergus Falls, Hospital for Insane .....			16	3														
Hastings, Asylum .....			1															
Minneapolis, Soldiers' Home .....			5															
Owatonna, School for Dependents .....			1		1													1
Red Wing, State Training School .....			0															
Rochester, Hospital for Insane .....			8	1														
Sauk Centre, Home School for Girls .....			0															
St. Peter, Hospital for Insane .....			0															
St. Cloud, State Reformatory .....			7			2												1
Stillwater, State Prison .....			2	1														
OTHER PARTS OF STATE			871	67	14	116	5	12	11		2	1	1	5	31	49	9	43
Total for state .....			2054	182	42	243	16	21	19	0	9	2	1	16	56	141	13	102

\*No report received. Registrar not doing his duty.  
126 stillbirths not included in above totals.

# A Tonic with Food Value

You will find in Malt-Nutrine valuable tonic properties due to the aromatic bitter principles of Saazer hops. You will also find the **food** value of more than 14 per cent. of pure malt extract. The ingredients of Malt-Nutrine are carefully and properly chosen to constitute a real food-tonic and are combined through scientific processes under the direction of competent chemists.



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ANHEUSER-BUSCH,

St. Louis

## PUBLISHER'S DEPARTMENT

### TUBO-ARG

The attention of medical men is called to a new device of the Tubo Chemical Co., of Duluth, a simple, effective, and cleanly mode of administering a silver preparation in gonorrheal urethritis.

Any device that makes for convenience and cleanliness in this line will commend itself, and therefore this Company does the profession a service in offering this appliance.

### HEMO

The Thompson Malted Milk Co., of Waukesha, Wis., says "Hemo is more than malted milk, and costs the same; and the Company wants every physician to know this fact, and also to know what a delicious food drink Hemo makes."

Samples of Hemo will be gladly furnished by the Company, whose product is perfectly ethical, and has long been sold to the profession.

### FOR HAY FEVER

The inflamed and painful mucous membrane caused by hay fever greatly needs a soothing lotion; and none is better, both because of the comfort it gives the patient and because it prepares the inflamed surface for ready restoration to its normal condition, than Lavioris, which is zinc chloride in permanent solution.

Samples are cheerfully sent free to physicians, who will send their card or a request to the Lavioris Chemical Company, Minneapolis.

### MOOR (MUD) BATHS

The "mud" bath, with its accompanying mineral waters, is a recognized institution, and it gives results in the form of temporary, if not permanent, relief in so many manifestations of disease, that physicians must often recommend these baths.

The Waukesha Moor (Mud) Bath Co., of Waukesha, Wis., calls the attention of our readers to their health resort, which is under the medical direction of Dr. Augustus S. Giles, and to their baths.

### BULGARIAN YOG-HURT

The bacillus bulgaricus has been found by the medical profession to be an invaluable means of rendering milk fit for the stomach and intestines in conditions very common, especially in the summer, and yet difficult to overcome other than by a food product that the digestive tract will retain and assimilate.

Such a milk product is Bulgarian Yog-Hurt, and the live bacillus for its manufacture is furnished by the Bulgarian Yog-Hurt Company, of Minneapolis.

### THE ST. JAMES HOSPITAL AND SANITARIUM

It is rarely that a conductor of a private hospital or sanitarium finds himself in the possession of a so handsome and well-arranged building as the above-named institution, conducted by Dr. W. H. Rowe at St. James, Minn.

This building, with commodious grounds, was erected for a hotel, and it is now used as a general hospital,

but has excellent facilities for the treatment of nervous and mental cases.

Dr. Rowe invites correspondence from all physicians seeking excellent accommodations at moderate prices.

### FIRST AID IODINE AMPULS

The H. K. Mulford Company is putting up in compact and convenient form an individual iodine ampul for first-aid use in care of any form of wound susceptible of antiseptic treatment. The glass container is enclosed in a wooden jacket, and may be carried in a vest pocket, or a half-dozen of them may be carried in an emergency kit.

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Probably some of our readers do not know that Dr. Uhlich conducts such a laboratory for the profession. Dr. Uhlich invites physicians to visit his laboratory whenever in Minneapolis, or to write him for his fee-table, and also for any information they may want along this line of work.

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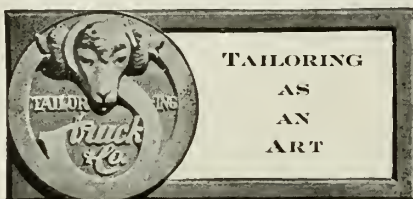
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## SOME PRACTICAL CONSIDERATIONS IN THE DIAGNOSIS OF ABDOMINAL CONDITIONS\*

BY DAVID L. RUNDLETT, M. D.

SIoux FALLS, SOUTH DAKOTA

In presenting this paper for your consideration today, I do not intend, by any means, to go deeply into any text-book discussion of the differential diagnosis of the various abdominal conditions; for, if I did, it would add nothing but what could be easily gleaned by a study of any of the numerous authorities, and the time allotted to me will not allow for any such lengthy discussion.

My object is simply to point out a few of the many practical things that I have come to look upon as essential in diagnosing abdominal conditions, especially those pertaining to the alimentary canal and its appendages, during a study of many cases occurring in my hospital and office practice. Some of the things that I shall mention may not seem practical to you, and they did not to me until I took up a systematic study of all cases coming under my observation; but, I am sure, if you will follow out some of them, at least, you will have the satisfaction of clearing up doubtful points before the operating surgeon has the abdomen open, and his hands on the inside.

One thing that has impressed me more than anything else in this series of studies is, that hardly any two cases coming in with apparently the same presenting symptoms, on working out these cases in the way I do, show the same underlying cause, or, on operation, the same pathology, and it is because of this fact that I have

taken this subject for my paper. Take, for instance, two cases I have seen within a week, each of which gave a history of pain an hour after food, the same increasing until more food or alkalies were taken, tenderness in the region of the duodenum, sometimes transmitted to the back, rigid constipation, loss of weight and strength, and considerable gaseous distention. On working these out, one had a hyperacidity and hypersecretion and occult blood in the stools and stomach-contents, and the cause, on operation, proved to be an ulcer one inch below the pylorus, while the other showed an absence of free hydrochloric acid, much reduced combined acid, very little pepsin or rennin reaction, in fact the picture of an achylia gastrica, which was evidently of functional origin, for it cleared up on proper diet, hygiene, and a mixture composed of strychnine, scale pepsin, and dilute hydrochloric acid in a glycerine and water menstruum.

You can see the improvement that would at least have followed routine treatment of these apparently identical cases, and I do not wonder that patients go from doctor to doctor with these conditions, because so few of us who are in general practice, take the pains to work these cases out. Sometimes, however, after we have worked these cases out by taking a very careful history, by the use of test-meals, examination of urine, feces, and the blood, and supplementing these tests by the bismuth or barium sulphate meal and fluoroscopy and skiagraphy, we fall down, and fall down hard; but, we have the satisfaction

\*Read at the 34th annual meeting of the South Dakota State Medical Association at Sioux Falls, May 18-20, 1915.



then of seeing others make the same dismal failure, and not jerk us up with a short rope because of some sin of omission on our part.

Of course the use of the Röntgen rays in the diagnosis of abdominal conditions may be said to be still in its infancy, yet in the diagnosis of such conditions as hour-glass stomach, obstruction at the pylorus due to contractions from previous ulcerations or bands of adhesions, obstruction along the intestinal tract due to the same causes, prolapse of the stomach, or transverse colon, renal calculi, certain biliary concretions, enteroliths, or foreign bodies, its use is of inestimable value.

Of the acute ulcerations, with the exception of those that have penetrated deeply, so that a nick or recess is visible, the rays are of very little value according to Barclay, in his recent work on the "Alimentary Tract," that is just off the press. At any rate it is going to take a lot of patients for us to work on, and patience on our part, to enable us to learn properly to interpret what we see through the fluoroscope or on the skiagraph.

You have all probably come to the conclusion by this time that I consider the only practical way to reach the bottom of these conditions, is to be thorough with all cases that come to you; and such is the case.

First. I believe that a careful history should be taken, family as well as personal, going back several months or years if needed to get at the starting-point, for we know that many cases, especially the chronic ulcerations of the stomach and duodenum, may have been running for years, with months of remissions, followed by recurrence, and this very sequence of recurrences should put us on our guard at once, as, at least, suggestive of ulceration in these organs.

Second. Make a very careful physical examination in the following manner: by inspection, looking for swellings, hyperperistalsis, enlarged abdominal veins forming collateral circulation, color of the skin and sclera; looking by percussion for abnormal areas of dullness, and using auscultatory percussion over the hollow organs, by which method one can, with a little practice, outline the hollow viscera; by palpation, by which the borders of the organs can be outlined, tender points located, splinting of the belly-wall detected, and too much mobility in any organ detected; by the pencil method of Dr. R. Hazen, locating a very small area of tenderness that would often be overlooked by palpation with the hand or fingers; and by auscultation, by which undue rumblings in the bowels may be heard, and

listening carefully to the heart, and noting any abnormality in the circulatory apparatus, and taking the blood-pressure, for many vague digestive symptoms may be brought about by passive congestion of the abdominal viscera.

Third. Working out the various secretions and excretions in the laboratory, such as the urine, blood, stomach-contents, and feces. The working out of the blood and urine may bring up some question in your minds as to the necessity of the same in abdominal conditions, so I will cite a case, to bear out my contention.

About a month ago I was asked to see a case by a colleague, and obtained from him the following history:

A young woman, aged 21, had developed a case of puerperal septicemia following childbirth about three months before, and had been referred to him for treatment by the doctor in the town where she lived. Her temperature then was ranging between 103° and 105°, pulse 100 to 120, nasty foul discharge from the vagina, and exquisite tenderness in the right fornix. With the aid of another colleague, he had had an autogenous vaccine made; and with this and supportive treatment, she had improved. Until the day I saw her the temperature had not been above 100° for over a week, and the tenderness was markedly better in the pelvis, but she had developed an uncontrollable vomiting. Everything that was tried did no good, and the vomiting continued. On checking her up, the first thing that caught my attention was a very strong, hard pulse in spite of the general weakness, and I found a blood-pressure of 160 mm., and, on calling for a catheterized specimen of urine, I found sufficient grounds to warrant me in making a diagnosis of oncoming uremia, complicating an acute toxic nephritis, and giving a bad prognosis. In spite of very active treatment she died in less than a week in uremic convulsions.

While this was not exactly an abdominal case, the vomiting was a symptom that pointed strongly to some abdominal disturbance, and the laboratory work cleared the atmosphere almost immediately.

As regards the blood, many conditions, such as plumbism with its colic, may be identified quickly by the stippling of the red cells, and the digestive disturbances accompanying pernicious anemia, and chlorosis in young women, may be quickly lined up if we know the blood-picture.

Fourth. If, after going over the above procedures, we are still undecided, we can then bring the Röntgen rays to our aid, to corroborate those findings which we already have, and, with the few exceptions previously mentioned, I feel that corroboration is all we can expect from their use at this time.

I have seen men in the past who seemed to have an intuition in these cases, who could come

in, make a physical examination, and give a diagnosis almost offhand; but these men are rare, and I feel that most surgeons will admit that most cases that are worked out carefully in the laboratory will show a larger percentage of correct diagnoses than when made offhand.

Some of you will say that you have not the time to make the stomach examination for the detection of ulcerations. For you I will speak of two methods that have been introduced by which we can tell quickly the presence of hyperchlorhydria and occult blood,—the two important symptoms in the diagnosis of ulcer. The first is the method introduced by Friedrich for the detection of free hydrochloric acid in the stomach. His method consists in producing the necessary chemical reaction, directly in the stomach, by means of threads saturated with congo-red. He claims to have verified his findings many times; and I personally have done so. He introduces a long thread dyed a deep red, and a short one dyed pink, so that he can better judge of the reaction. His scale of reaction is as follows: browning of the dark red thread indicates sub-normal acidity; violet means normal acidity; blue-black, above normal or hyperchlorhydria. In the presence of hyperacidity, the pink thread is colored blue if it is of high grade; sky-blue if it is extremely intense. To be accurate these colors must be observed as soon as they are removed from the stomach, and before being touched by hands or instruments.

For blood I have been using Shuman's modification of Einhorn's silk thread and bucket, which is as follows: take a No. 14 braided silk cord, and attach to one end a buckshot by drilling a hole in the same. Now measure the approximate distance from the angle of the mouth to six inches below the pylorus. The patient swallows this shot and cord in the evening, you supervising the process. The free end of the cord is made fast around the patient's neck, allowing enough cord for the shot to pass the pylorus to a point below the ampulla of Vater. This is left in place all night. On removing the cord in the morning, you will note from the end where the shot is that the cord is bile-stained, being a yellowish green. Now, as you follow up the cord you will find dark spots, varying in degree, which can be verified as blood by the guaiac test, if ulceration is present. The size of the stains will also give an approximate idea of the size of the ulceration. Can anything be simpler or more practical?

While I am speaking of tests for ulcer, I wish

to mention the fact, that, along with other observers, I do not feel that we should take the assertion of Moynihan, in his work on "Duodenal Ulcer," when he says that "every recurrent severe hyperchlorhydria is duodenal ulcer" as gospel fact. While such is undoubtedly the case in a large proportion of cases, I have seen several that were proved at operation not to be. I will cite two such below as a fair example, to bear out my contention. I will say, however, that I was not led astray in either of these cases, as I advised the very operative measures that were done, and based my advice on the absence of occult blood from both stomach contents and feces in both cases.

The first case was as follows:

CASE 1.—J. D. E., aged 55, male, occupation, judge of United States court, had been suffering for the last fifteen years, off and on, from a gaseous distention after meals, and at times this distress became a pain which came on three hours after meals, and continued to grow worse as time went on unless food or the alkalis were taken. He had spells when he had vomited a very sour, bitter, watery fluid that made the teeth feel chalky. Often was waked up at night by this pain so that he kept a glass of milk and a cracker at his bedside to take on waking. Had not been up to usual weight for some months, and was tiring out easily. Physical examination showed the stomach slightly enlarged, tenderness at end of the xiphoid cartilage; heart and lungs, negative. Appendix had been removed fifteen years ago by Dr. Ochsner, of Chicago. Examination of the stomach-contents after a test-breakfast showed the following: total acidity 66, with free HCl 27; pepsin and rennin reactions increased, but there was no occult blood in the stomach-contents or the feces. Blood showed a mild grade of anemia with 6,660 whites, 57 per cent of which were polynuclears. Urine was negative, except that it had a slight increase in indican, and a low output of urea. I could not satisfy myself in the absence of occult bleeding that we were dealing with a duodenal ulcer, but felt it was a case of hyperchlorhydria due to a neurosis, as he was very nervous and was suffering from some very irritating hemorrhoids and a polypoid condition in the nostrils. I advised removal of the polyps and hemorrhoids, which was done, and in a month all symptoms of distress had disappeared, and examination of the stomach-contents at that time showed absence of excessive acidity, and the blood count straightened out quickly.

CASE 2.—F. F., male, aged also 55, occupation, clergyman, came into my office last fall with the remark, "that he had lost all faith in medicine and doctors as a class, as he had never been able to obtain permanent relief from a severe indigestion," as he called it.

He gave the following history: For twenty-five years he had been bothered with distress, which had become a pain, coming on from two to four hours after eating; there was at all times a feeling of discomfort, but the pain and discomfort was almost invariably relieved by eating. He had noticed that this pain was made worse if he worked hard or became nervous over anything, and that it made little difference what he ate as to



the pain coming on, except that it came more quickly after taking fluids. He had had an attack of typhoid fever three years before and had noticed that he had been bothered more since then, and that he had had spells of painful urination, where the stream would suddenly be cut off, only to be resumed on sitting down and waiting a few moments. Had never noticed any blood in the urine, and had never vomited any, in fact could seldom vomit, but frequently would be troubled by a sort of regurgitation of a very sour, bitter, watery fluid, that made the teeth feel chalky.

Physical examination showed a well-developed man, lungs negative, heart negative, blood-pressure 120 systolic, 65 diastolic. On going over the abdomen, the only thing I could find was a slight tenderness over McBurney's point by pencil palpation, palpation by the whole hand or fingers not developing it. A skiagraph of the bladder was negative as to suspected vesical calculi.

Examination of stomach-contents showed a total acidity of 70, free HCl 15, faint pepsin and rennin reaction, no lactic acid, no occult blood, and none was found in the feces. Blood showed 5,186,000 reds; 5,200 whites, with 71 per cent polynuclears on differential count of whites. Hemoglobin was 85 per cent, so that there was a relative deficiency of hemoglobin in red cells.

Urine contained no albumin, was alkaline in reaction, with 14.4 grams urea in twenty-four hours. Sediment consisted of a few bladder and pus cells and colon bacilli.

Here again I failed to obtain occult blood in stool or gastric contents, and felt reasonably sure that we had a neurosis of the stomach, due to some outside irritating cause, and with other physical findings, I could but feel that the cause was his appendix, and advised removal of the same. This he refused to have done at this time, so I put him on the old-fashioned alkalies, olive oil, and a carefully regulated diet. He improved somewhat, but he told me on the street one day that I was no more successful than the rest in giving him permanent relief.

Just six weeks to a day after his examination, I was called to his house, and found him suffering from very severe cramps, all located in the stomach, no tenderness over the appendix, but he had been vomiting some very acid, bitter, thin material. This was at eight in the evening, and I could not feel but that he was commencing an atypical light-up from his appendix, and urged him to go to the hospital with no delay.

Although I disliked to do it, I was forced to give a hypodermic of morphine, half a grain being needed to give any relief and stop the vomiting. This attack had come on he said from eating cold slaw when tired. The hypodermic had to be repeated at 4 A. M., but by this time tenderness over the appendix, and some splinting of the right rectus muscle, were developing.

I had a leucocyte count made the first thing that day, which showed a leucocytosis of 12,000 with 83 per cent polynuclears, and I demanded immediate operation, fearing either gangrene or supuration.

After a good deal of persuasion he was taken to McKennan Hospital, and Dr. Cottam, at my request, operated as soon as we could prepare the patient, and removed a gangrenous appendix, about four inches long, as large in diameter as my index-finger, which was dipping down into the pelvis, and attached to the bladder. He was drained through the flank and bottom of the primary incision, and, though he was desperately sick for a week, finally left the hospital for his home the commencement of the fourth week.

Suffice it to say that his bladder symptoms cleared up, and in less than six weeks he was eating things he had not been able to eat in twenty-five years, with no pain, distress, or gas, and was preaching in about eight weeks from the date of the operation. This was a hyperchlorhydria, but not ulcer.

Before I leave this series of cases, I wish, however, to give two or three histories that bear out the statement made by Moynihan.

CASE 1.—E. G. K., male, aged 68, occupation, president of bank, first came under my care in April, 1908, evidently at that time suffering from a nervous breakdown with insomnia, rapid, weak heart-action, and vague symptoms of dyspepsia, as he called it. This cleared up upon rest, a tonic of iron, arsenic and strychnia, with a tablet of rhubarb and ipecac compound after meals, and a carefully regulated diet. At that time the digestive symptoms were not suggestive of anything, and were not constant.

He had several spells similar to this one, occurring about twice a year, until April, 1912, when he came in with a history of nervous restlessness, and insomnia, loss of memory and nerve force. At this time his symptoms as regards his digestion, for the first time, commenced to take on a regular picture of ulcer, and I told him so, but he laughed the matter off saying, "I know its all my nerves," and refusing a gastric analysis.

He continued along about this way, with ups and downs, until January, 1914, when he comes in with a history of pain, coming on about four hours after food, which he found to be relieved by alkalies or by more food, with loss of sleep, and general gaseous distention. This time he listened to my suggestions, and submitted to a general check-up, which showed the following: heart and lungs, negative; abdomen, negative except a tender spot just below, and to the right of, the xiphoid cartilage; urine, negative at this time. Stomach analysis showed a total acidity of 68 with 25 free HCl. Pepsin and rennin were apparently normal, there was evidence of marked hypersecretion, and occult blood was found in the stomach-contents, as well as in the stool. The presence of hyperacidity and blood were confirmed by the string test and the silk-cord test, above spoken of. I told him he had an active ulcer in the first part of



the duodenum, but he said he wanted another opinion, and went to another well-known internist in the state, who told him the same thing and advised him to go to Rochester.

On March first he came in the office again, and told me the diagnosis of duodenal ulcer had been confirmed by Dr. Charles Mayo, and that he was going back to Rochester for operation, which he did, and Dr. William J. Mayo performed a posterior gastrojejunostomy, for an ulcer on the posterior wall of the duodenum, which was folded in and adherent. He came back home and went to his duties too soon, and last August suffered a relapse, the blood appearing again in the stomach-contents and stools, and his distress, and a certain amount of bilious vomiting, coming on at infrequent intervals, reappeared. I advised his return to Rochester, but he refused to go, but did give up his duties and has taken a prolonged rest. I have heard from him several times, and he tells me "He was able to come back."

The next case that I shall cite, while not yet operated upon, I am certain will have to be before relief is obtained.

CASE 2.—J. D. D., male, aged 64, occupation, merchant, resident of Sturgis, S. D., came to me for a check-up last August, and I obtained the following history: for twenty years had been troubled with his stomach and intestines, with fermentation and gas-formation, coming on three or four hours after meals, with, at times, a burning or gnawing sensation, made better by eating. Hot saleratus water also often gave relief. Family history was negative as to malignancy; mother and twin sister living and in good health; father died in 1853 of cholera after a very short illness. His principal complaint then was eructations of gas and sour watery material and pain after food. Physical examination showed the following: lungs and heart, negative; blood-pressure was 128 systolic, 75 diastolic, and arcus senilis was marked. He was not a drinking man. Abdomen showed stomach dilated, lower border at umbilicus, and abdomen tympanitic over its entire extent; liver, normal size; and there was no jaundice and no marked spot of tenderness in the abdomen.

Stomach report after examination of contents showed the following: total acidity, 60; free HCl, slight; slight reaction of peptic and rennin ferments; impaired motility; and, by microscope, pavement epithelium (columnar), few Oppler-Boas bacilli and streptococci; occult blood. The occult blood was also found in the stools. Blood showed 3,650,000 reds; 5,200 whites; 85 per cent hemoglobin; few poikilocytes; and differential count of whites was as follows: polynuclears, 76 per cent; small lymphocytes, 8 per cent; large lymphocytes, 13 per cent; mast cells, 1 per cent; eosinophiles, 2 per cent. Urine showed traces of albumin and decreased output of urea. Skiagraph of abdomen after bismuth meal showed a constriction at the pylorus.

With these findings I made a diagnosis of ulcer, perhaps undergoing at that time malignant change, and advised immediate interference. He told me he would have to talk things over with his family, and that he would attend to the matter without delay. The next thing I knew he was in one of the cold-water sanitariums living on excelsior; and at the end of two months he was no better. I have not heard from him since, but feel certain he will have to submit to operation before he is relieved.

I might go on for a long time citing cases as I have the above, which look from presenting symptoms as alike, but I feel I have mentioned enough to set all general practitioners present thinking; and if I have succeeded in pointing out the necessity of more careful work in diagnosis of abdominal conditions I shall be satisfied.

I have avoided discussion of biliary disturbances, as I presented a paper two years ago on that subject before the Sioux Valley Medical Association, and I wished to bring out these other conditions as prominently as possible, for I am constantly stumbling on to them in my work, and I consider them very interesting and important to work out.

#### DISCUSSION

DR. F. D. GILLIS (Mitchell): There are a few points in the paper that I wish to emphasize, as being especially important:

First. The taking of a complete history and the keeping of careful records. This may be hard for the general man, but, nevertheless, a few moments spared will certainly insure better work.

Second. The laboratory facilities which we all have, or which we ought to have. The most important mentioned by Dr. Rundlett is the blood-examination. We are all doing urinary work, and a few of us are doing stomach work, and well we know the importance of these tests, yet with all these tests at our disposal we find many cases where it is hard, even with the most improved diagnostic methods, to make a diagnosis.

I wish to cite briefly two cases, which have come under my notice the past few weeks, that illustrate this point:

CASE 1.—Patient, aged three, had had a closed operation for congenital dislocation of the hips ten days ago. Three days after the operation the patient became restless; temperature, 102°; pulse, 160; physical examination, negative; urine, negative; feces, full of mucus, very slimy, and offensive; blood, 3,500,000 reds and 16,500 whites; hemoglobin, 75 per cent. I made a preliminary diagnosis of autointoxication or hemic fever. As she did not respond to the ordinary methods of treatment I made a differential count with the following result: 86 per cent polymorph.; 3 per cent large lymph.; 1 per cent small lymph.; and 10 per cent eosinophiles.

With these data in hand I made a more thorough examination of the stools and found many pin-worms. This was all very interesting to me, but as to its bearing upon the case and as to the cause of her trouble, I was still in the dark.

CASE 2.—This case was also interesting because of the indefinite symptoms and signs. The woman was of middle life, whose only complaint was a severe pain in the lower left side. And this pain was so severe in character that she had to be kept under morphine. On pelvic examination a very small soft mass was found in the left side, very cystic in character; otherwise the pelvis was negative. Temperature and pulse, normal; blood, 47,000 whites with the differential negative.

We made a preliminary diagnosis of ovarian cyst undergoing degeneration, and operated. The left tube contained a degenerated fetus, and the tube had twisted

upon itself about three times, completely shutting off its own blood supply.

I think that the two cases I have just cited are good examples of how easy it is to go astray even though we use all of the methods laid down for us.

DR. H. T. KENNEY (Pierre): I would like to ask Dr. Rundlett if he has run across cases in practice where there seemed to be surely gastric ulcer, and where there did not seem to be any question of doubt in the diagnosis; and, yet, when they went to the surgeon, he failed to find the ulcer, and *vice versa*, for that matter.

I have had drawn to my attention a case where we were able to make, according to the laboratory diagnoses and physical findings, a diagnosis, or, at least, there was a positive picture, of a pyloric gastric ulcer. The case went to Rochester, and they diagnosed it as

gall-stones. They operated on the case, and found a posterior pyloric ulcer. I want to know if Dr. Rundlett does not run across such cases?

DR. RUNDLETT (closing the discussion): I have nothing additional to offer in closing the discussion, but in answer to Dr. Kenney's question I will say that we know that hyperchlorhydria is very often caused by gall-bladder disturbances, and so also, as in the case that I presented here, the appendix has caused the disturbance.

I have seen similar cases; but in those cases I have never been able to demonstrate occult blood in either the stools or the stomach-contents. I have read of such cases and feel that they occur; but the above is my personal experience.

## THE MORPHINE HABIT AND ITS TREATMENT\*

By A. J. PAULSON, M. D.

FLAXTON, NORTH DAKOTA

Since the Harrison law, passed by our recent Congress, has become effective, so much has been written regarding narcotic drugs, and so varied are the opinions put forth, that we can arrive at but one conclusion, viz.: that we are alarmingly ignorant with respect to the narcotic-drug habit and its treatment. We are, I might say, taught to consider the drug victim as a weak-minded, deteriorated wretch, a mental and moral degenerate, pandering to some morbid sensuality, taking a drug to soothe him into delightful dream-states, and held by us in disgust, regarded as so depraved as to be unworthy of rescue. This individual, if he comes to us in a state of collapse, begging for his drug, is, ordinarily, either turned out with a flat refusal to help him or is given "a shot," and sent on his way, only to repeat the process when the effect of our administered dose has worn off.

Up to the time that the Harrison act went into effect most of these drug addicts got along very comfortably. While the great majority of them would gladly have been freed from their habit, they realized that our failure to appreciate their condition, and our inability to offer material aid, rendered their condition rather hopeless with respect to cure. They thus accepted their affliction and, by regulating their drug habit, led as nearly a normal existence as possible, and were in a large number of instances never suspected by even their closest associates. Not so, however, since the supply of their drug has been cut off.

During the last few weeks victims all over our land, who have never been suspected by any one, have appeared for treatment. Husbands were unsuspected by their wives, and *vice versa*; and the medical profession seems ready to grasp at any straw that might offer the slightest hope for relief. So many and so varied are the plans of treatment and suggestions offered that it would seem that we are almost at sea as to the proper method of procedure. Any new idea is grasped with enthusiasm. Only recently some physician announced in a publication that he had discovered that twilight sleep was the best and an ideal treatment for the morphine habit. Another writes that it is not necessary to give a cathartic in the treatment of morphinism, as most patients develop a diarrhea when the drug is removed. He forgot that there can be a flushing of the bowels without proper elimination.

Too little study and observation of physical manifestations has been given to the victim suffering from the narcotic addiction. This disease—for it is a disease—has most commonly been observed in its fully developed state. Our conclusions have been derived from spectacular end-results after a long period of drug-consumption. When we think of the morphine fiend it is usually as a person down in the gutter whose only ambition is a sufficient supply of the drug to keep him comfortable. The symptoms in these unfortunates have been ignored, or misinterpreted as evidence of weak will-power or lack of desire to forego morbid pleasure.

However, with these vague ideas regarding the narcotic addict, a few physicians who have had

\*Read at the 34th annual meeting of the North Dakota State Medical Association at Bismarck, N. D., May 12 and 13, 1915.



better opportunity to observe the victims, have realized that these patients were *sick* with a definite diseased condition, and that, unless the disease was understood and treated in a scientific manner, little progress could be made toward a solution of the problem.

It is a fact that morphine—and what is said of morphine is largely true of other narcotics—will afford pleasure to many not fully addicted to its use; and for this reason they have become victims of the habit. This is not true, however, of a large number of cases. We as physicians have justly been accused of being responsible for the morphine habit in a large proportion of cases. Too often this is true. Had there been a law years ago making it illegal for a physician to let the patient know the nature of the drug administered, we should have fewer morphine addicts to-day. You have all come into contact with patients who have told you that the doctor gave morphine at a certain time for a certain condition, and that at some other time he (the patient) went to the drug-store, and got the drug himself without the consent or knowledge of the doctor. Before realizing his condition the same patient was a fiend. Not so very long ago a tubercular patient came to me and stated that she had been taking morphine as directed by a physician for her cough. Her habit was so well established, and she was taking the drug in such quantities, that it was difficult to determine which was sapping her vitality the more, tuberculosis or morphine.

Many patients, after the condition for which morphine has been administered has ceased, discover that a habit has been formed which they find themselves unable to break, and the physician is himself unable to control the ever-present craving for the drug.

Literature on narcotic drugs gives very little information as to the action and the symptomology in those who have formed the habit. The observations made are mostly derived from the effects of the drug upon the normal man or animal. With these facts in hand, Dr. Bishop of New York, who has had a vast experience with narcotic addicts at the Bellevue Hospital and the New York City work-house, has formulated a theory from the production of phenomena and symptoms in the addict, which gives a rational basis for treatment.

Since morphine is the best example for narcotic addiction the discussion will be confined to this drug, the others being of a very similar nature.

It is a well-known fact that the morphine consumer can take a large quantity of the drug without any immediate untoward effect. Explanation of this tolerance has been attempted on the following hypothesis: the taking of morphine produces an antitoxic substance in the body, this antitoxic substance acting as an antidote to the morphine taken into the system. It is also claimed by others that the increased oxidizing power of morphine, by the body, enables the addict to take, without danger, the large quantities of morphine; but it is to the formation of the antitoxic substance that we must look for an explanation of the symptoms attending insufficient supply of morphine to the habitual consumer. The ordinary addict does not use morphine for the supposed attending pleasure, but solely for the support to function, stimulation to circulation, maintenance of nerve balance, and relief from impending collapse.

His daily need for morphine becomes as definite and inevitable as that for food and air. Given a certain morphine addict with a well-established habit, he requires a certain, definite amount of morphine each day in order to remain in a normal condition. Give him more than the regular body need and he will show the same effects as those obtained by administering morphine to a person who does not habitually use it. Over-dosing continually produces the inhibitory effects of morphine, locking up secretions and body-functions, causing malnutrition, autotoxemia, and consequent mental and physical deterioration. Give him less than the regular amount, and he is deprived of normal body-reaction, and his vitality and energy are below par. An addict neither over- nor under-dosed defies detection.

After the habit is well established, failure to administer the drug causes a chain of symptoms which vary only in intensity in the different cases. These symptoms are, in a general way, as follows: vague uneasiness and restlessness, with a sense of depression, followed by yawning, sneezing, hypersecretion of mucus, nausea, vomiting and purging, twitching, jerking, and cramping of muscles, abdominal distress, cardiac and circulatory insufficiency and irregularity, drawn and haggard facies, pallor deepening to grayness, exhaustion, collapse, and, at times, death. You will note that these symptoms are strikingly similar to those of acute mineral, vegetable, and autotoxic poisoning. Acute need of morphine produces the symptoms of some definite powerful poison. Morphine relieves these symptoms: therefore they can not be due to morphine. Fur-



thermore, they are relieved in a direct ratio to the amount of morphine administered. Their manifestations are opposite to those of morphine. These symptoms are best explained as due to the action of some toxic substance, antidotal to morphine, and produced in the body to protect it against the effect of morphine.

The theory of the production of an antitoxic substance explains the establishing of tolerance, the definite amount of morphine needed, the results of under- and over-dosage, and the non-interference with body-function and general health when the normal amount of the drug is adhered to,—the amount needed to neutralize the effect of the antidotal substance. Patients, after taking different cures, often suffer from the symptoms of morphine need in exactly the same manner as the addict who is daily getting a little less morphine than his customary and needed amount. This condition seems best explained by the hypothesis that there remains locked up in the body a deposit of morphine or morphine product not susceptible to ordinary elimination, which causes the further production of the antidotal substance.

Results of treatment tend to show that the morphine residue, which it is necessary to eliminate, is locked up in the liver cells. Free cholagogue catharsis reduces the amount of morphine need and increases the length of time a given dose maintains the patient's balance. These results cannot be obtained by cathartics which do not act on the liver.

If the cholagogue cathartic administered is sufficient to eliminate the locked-up morphine product completely, there is a sudden and marked change in the patient's condition. In the course of a few hours there is a complete cessation of desire for morphine; and whatever uncomfortable symptoms may attend the process of elimination, do not require morphine for alleviation. In certain cases it seems that eliminative power of the liver is exhausted before the morphine residue is all disposed of; and in these cases over purgation does harm, and the desire for morphine still exists, but in a smaller degree. These patients should not be entirely deprived of morphine, but should be given the needed reduced quantity. Their physical condition should be improved, and the eliminating process repeated at a future time.

After a successful treatment these patients will respond to ordinary medication; and sleeplessness, pain, poor cardiac action, nervousness, etc., can be treated in the ordinary manner and

without morphine. Before treatment none of the above symptoms would respond to ordinary measures, and morphine was the only source of relief.

No routine treatment which applies to all cases can be prescribed. Cures can not be done up in packages and handed out to the patients.

The process of elimination is chiefly brought about by the cathartic containing a cholagogue. Care must be taken to give a sufficient purge, but at the same time do not purge the patient beyond his powers to react. Strychnine is administered, not as a cardiac remedy, but for the peristaltic action it produces. Other remedies are used as symptoms indicate. Sparteine sulphate is very effective where a cardiac stimulant is needed, but it must be administered in doses of from one and one-half to two grains.

A short outline of treatment is as follows:

1. Ascertain the minimum daily morphine need, and administer this amount so as to have the patient in a well-balanced condition; continue to administer this amount of morphine until the last dose of the cathartic is given.

2. Eight hours after the last meal has been taken, the following or a similar cathartic is given:

Calomel—grains, iss.

Pv. ex. cascara—gr. ii.

Pv. ex. ipecac—gr.  $\frac{1}{4}$ .

Atropine sulph.—gr. 1/400.

Strych. sulph.—gr. 1/60.

Ft.—Pulv. No. i.

Sig. Give one such powder every two hours for three or four doses, as the patient may require.

After the last dose of this cathartic wait eight hours, then give strych., gr. 1/30, follow this in one-half hour with castor oil. During treatment give sparteine sulphate as the heart-action indicates, and the usual remedies for other conditions that may arise. Let the patient have all the water desired, to avoid draining the system of too much fluid. It is not necessary to administer drugs to deaden the patient's sensations so that he does not know what is going on during the process of treatment.

If the eliminative process has been complete no further treatment is needed. If incomplete, repeat the process after the patient has reacted and regained a normal state. It will be noted that the amount of morphine needed after the first treatment, if elimination is incomplete, is much smaller than formerly; and no more of the drug should be given than the patient re-

quires to re-establish a normal state. After final treatment, small doses of calomel may be given for some time. Strychnine for peristalsis and sparteine for heart-action may also be advisable.

This method of treatment if properly conducted is effective. That it is permanent is also well established, and the patients have no further desire for morphine.

It may be urged that this subject is of little interest to us since rural districts have very few drug fiends. Still we all encounter them occasionally; and, if we can be the means of relieving but one such unfortunate victim, our efforts have not been in vain.

#### DISCUSSION

DR. C. E. STACKHOUSE (Bismarck): Dr. Paulson has certainly given a thorough analysis of a subject that is most important to us at this time. The point which I think important is, that the different individual cases of morphinism demand different treatments. Since the Harrison law many doctors have advised their individual treatments for all cases.

Dr. R. McDonald, of Chicago, as Dr. Paulson said, claims twilight sleep is the answer to the Harrison law. He claims he has cured hundreds of cases by scopolamine 1/200 every half hour for four doses, and then 1/400 for every three hours, and the treatment is concluded in forty-eight hours. In a day or two after the twilight sleep the patient goes home cured.

Dr. J. H. Johnson, of Nashville, reports wonderful cures with calcium sulphid, about four grains daily, and we all know the Lambert-Towne method under which the cures are established in less than five days. It seems inconsistent to me to think these short-time treatments will do for a case of many years' standing. There are patients who, owing to age or general debility, are unable to withstand this heroic treatment, and they cannot make the sudden readjustment to normal functioning that the treatment necessitates. The cure will last longer if the patient is conscious of the fight he made, instead of going through the cure in an amnesic or subconscious state brought on by scopolamine or a belladonna mixture of the Lambert treatment.

My own experience in the treatment of morphinism is confined to one case, a woman forty-four years of age. She had been addicted to the use of morphine twenty-five years, and at the time I began treatment she was taking eighteen grains daily in four doses, four and one-half grains each dose. Treatment began April 5th of this year. I used the gradual withdrawal method, and gave one grain of quinine sulphate with each hypodermic of morphine. I also advised the patient, when she felt nervous, to take a hot bath, with the result she was in a hot bath most of the time, but she got along well until April 26th, when she was not getting any morphine at all. The next day I gave 1/200 gr. scopolamine every half hour for four doses. This was followed by two hours of sleep. After she awakened she was very nervous, and suffered considerably from nausea and vomiting, pain in the back of the neck, and pain everywhere. In spite of anything I could do she

suffered all the agonies there are in this world for about forty-eight hours. She could not sleep, she could not hold nourishment, and had bloody stools and severe pains. At the end of forty-eight hours most of her symptoms disappeared, except she could not sleep, and she did not get any sleep until Sunday night, the 2d of May, when she slept about three hours. From then on until she was discharged from the hospital last Sunday, the 9th of May, she improved in every way, and began to sleep regularly, appetite good, and pulse normal. She was discharged from the hospital last Sunday, and she is all right so far as I can tell. Whether it will last or not I do not know, but I hope so.

DR. E. A. PRAY (Valley City): My experience in the cure of this trouble has been practically nothing. I have had very little to do with it, except since the Harrison law went into effect, and that has had to do with transients. I have had several pitiful cases; and that they are pitiful, we must acknowledge. One case that I recall more vividly than any other, a man, a young man, with all the tremor, all the severe effects of lack of morphine after having a sufficient quantity to allay or satisfy, and he begged me for relief from morphine with morphine or cocaine.

One thing I wanted to speak about is this: We really should be quite careful about giving these men anything to relieve the immediate effects. I think we ought to be so because he told me all the men up the Soo had given him relief, and five to ten grains of morphine and cocaine to take with him. I do not believe we are within the law when we do that. He made the further statement that So-and-so at Carrington said the Internal Revenue Inspector said he might give them five grains each if he wished to do so. This doing of good deeds may be all right in some lines, but not exactly advisable along this line. This man was in such condition that I gave him a "shot." I considered him in such extreme condition it was absolutely necessary to advise him to make his way to Minneapolis the next morning so that he could have proper treatment.

DR. D. H. BURTON (Fargo): I would like to answer Dr. Pray as to getting "dope" up and down the line. It is my experience that these people are the greatest liars in the world. I would not believe them under oath any time of day or night; and as to his getting this stuff from Doctors Jones and Brown, I do not believe it.

DR. PRAY: Yet, he undoubtedly told the truth.

DR. E. A. NEFF (Emerson): I would like to ask Dr. Paulson how he administers the prescription.

DR. PAULSON: In answer to the question as to the frequency of administering this cathartic: It is usually given every two hours, and for three or four doses ordinarily. Of course, that depends on the patient, and it is not necessary to give this particular cathartic, but that is a simple one. There are no such things as specifics that will counteract the effects of the narcotic drugs. Scopolamine, or twilight sleep, or any of these, do not act as specifics; and if there is any merit in them, it is only in alleviating the symptoms accompanying the withdrawal of morphine.

The plan of treatment is to eliminate the drug that has accumulated in the system, and when that is eliminated, if this theory is right, the antidote that is produced in the system will stop being produced, and you

get rid of the morphine in the system, together with the antidote, and the patient is cured.

Regarding the treatment of these patients: If you can get rid of the residue of the morphine, or whatever narcotic drug is used, in forty-eight hours, you have cured that patient in forty-eight hours. If you can not get rid of it in less than two weeks, it takes two weeks to cure the patient. The time it takes to effect a cure varies with different conditions. In a young man of twenty-five, robust in health, the treatment can be more vigorous than with an old lady of sixty-five or seventy years. A person that has taken morphine two or three years, and taken it in small doses, does not require as vigorous and as careful treatment as the same patient who has taken it thirty or thirty-five years. You treat the morphine patient in the same way you treat any patient. You can give larger doses of medicine to a strong, robust, husky person than you can to some person of more feeble constitution.

And as to the different remedies that are given: The important thing is the elimination, and this is not successful unless a drug is included that acts upon the liver as a cholagogue. All other drugs that are given for other purposes are simply to alleviate the symptoms. After this cathartic is given, if a diarrhea is produced which appears to be beyond the ordinary effects of the drug given, it may be necessary later on to give something to stop it.

If nothing but morphine will relieve the symptoms, your treatment has not been complete. A patient taking

twenty grains of morphine, for instance, after your treatment still requires three or four or five grains a day, and if you try to get the patient to go to sleep by giving him doses of sulphonal, veronal, or trional, and it is useless, that patient will need morphine in order to sleep; but if the elimination has been complete, then the ordinary remedies for the symptoms that arise are effective.

I wish to report one case I had under observation. Some months ago a woman, fifty-six years of age, had been taking twenty grains of morphine daily for thirty years. At the time I first saw her she was in a state of collapse, and looked to be closer to seventy-five than fifty-six years of age. She was given a treatment which conformed to the plan I have described, and later on, showing that elimination had not been complete, the process was repeated, and still later on it was repeated a third time. After that no more morphine was given, and we are absolutely sure no more morphine was obtained because the same patient was serving a six-months' sentence in a work-house where she could not get the morphine. The last time I saw her, seven weeks after the final treatment, she said she had no more desire for the morphine, and she had gained in weight fifteen or eighteen pounds, and looked as healthy as any person of her age under the conditions under which she was living, possibly could. At that time, after seven weeks had elapsed, she had no symptoms showing she had at any time been a morphine fiend.

## A FEW FACTS RELATING TO THE MINNESOTA STATE BOARD OF HEALTH

By H. M. BRACKEN, M. D.  
Secretary and Executive Officer  
ST. PAUL

In the *Northfield News* of June 18, 1915, appeared an article relative to the Minnesota State Board of Health which reads as follows:

The result of the action of the 1915 session of the legislature, and incidentally of the senate committee on finance, in hammering down the appropriation for the state board of health is being felt more and more as the days go by, although the members of the senate committee are still unusually careful in making any statements as to the cause of the committee's action, in which it secured the almost unanimous confirmation of the senate and of the house of representatives. Readers of *The News* will recall a previous article in which it was stated that the appropriations for the maintenance of the state board of health for the ensuing two years had been reduced from 25 to 33 1-3 per cent as compared with the appropriations of previous sessions, and that as a result of the heavy cut the state health regulations might suffer to some extent.

The real animus for the reduction was due almost entirely to nepotism, and where there was no nepotism the governing members of the state board permitted unusually high salaries to persons occupying the higher positions, in which little or no work was or is being done. One case of nepotism that was brought to the particular attention of the senate finance committee was

that of O. C. Pierson, who is occupying the position of assistant secretary under Dr. H. M. Bracken, secretary of the state board, and whose wife, Mrs. Gerda C. Pierson, is occupying the position of assistant registrar of vital statistics in the same department. Mr. and Mrs. Pierson jointly draw a salary of from \$300 to \$500 per month, and Mrs. Pierson is frequently absent from the important position which she is supposed to be occupying. This strain of nepotism seems to permeate the entire department, extending into the branch stations located in other cities, and so strong a hold do the benefactors seem to have upon the positions that when Dr. Bracken threatens to remove them from their places they brandish their fists in his face and dare him to make the removal under pain of exposure.

Just what the exposure would be in case the doctor made good on his threat to remove, and the persons removed would carry out their threats, is not certain in all cases. But one thing has leaked out sufficiently to warrant its publication as one of the clubs some of the employes hold over the head of the doctor in retaining their jobs. It appears that some time ago one of the departments of the United States government at Washington was anxious to obtain some vital statistics. The government department is said to have allowed three cents per name for the information and these names ran over 100,000. Dr. Bracken employed some clerk,



or outsider, to do this work, paid at the rate of from one or two cents per name, and pocketed the balance, or rather, no part of the total reached the state treasury. This is said to be the club wielded by Mr. and Mrs. Pierson. What other clubs other job holders have is not known at the present writing.

But the legislature did not hit the spot aimed at when it reduced the appropriation for this department. First, let it be understood that the senate went on record to make the secretary of the state board of health appointive by the governor, instead of elective by the members of the board, but the house killed this measure. Dr. Bracken's salary as secretary is fixed at a maximum of \$4,000 by the legislature—the board cannot place it higher than that amount but may reduce it to the amount it deems appropriate. The board, however, is given power to fix the salaries of all of the other employees of the department and the number runs to more than fifty. The board, therefore, instead of reducing the salaries of the various men and women occupying so-called "higher up" places, has, on recommendation of Dr. Bracken, allowed all of these salaries to stand where the position was retained, and has not only hammered down the large number of clerks and stenographers to a minimum but has also reduced the salaries of these lower-paid people—done to give the big-salaried people what they demand. The little fellows—young men and women—have had to suffer by reason of the legislative act which was intended to hit the "higher up" people. There is wailing all along the line in the less important positions in the health department over this discrimination.

It is hardly worth while, as a rule, to enter into controversy with newspapers, but this article of the *Northfield News* is being quoted quite extensively by other newspapers throughout the state. The *Glenwood Herald* of June 24th reviewed this article, and, in addition, said:

The recent legislature has been scored more perhaps on its decrease in the appropriation for the maintenance of the State Board of Health than for anything it did or left undone. \* \* \* As a result of this reduction it was claimed that the work of the Board of Health might suffer, and, in fact, attention has been called to some matters which have suffered presumably because of lack of funds. The work of the State Board of Health has been and is of considerable importance to the people of the state, and no one believes that its work should be hampered. But it seems that the legislature had valid reason for its action. The attention of members of the legislature had been called to the unusually high salaries paid to officials connected with the board and who were not devoting their time to the work of the department. Glaring instances of nepotism were also cited. It seems that the legislature intended to reach these officials who were enjoying a snap at the expense of the state. The desired results have, however, not been obtained. The snaps are still safely stored away and the number of clerks and stenographers have been reduced and the salaries of those who remain have even in some cases been lowered. The above statements are made on the authority of Tom Lawson, the well-informed correspondent of the *Northfield News*. \* \* \* If Mr. Lawson's contentions are true, and they undoubtedly are,

the criticism should not be directed against the legislature but rather against the State Board of Health.

The points made in the *Northfield News* are as follows:

1. The real animus for the reduction was due almost entirely to nepotism.

This is a remarkable statement. If anyone can prove that favoritism has been shown in this department toward any of its employees, we would be glad to know of it. The word *nepotism* in the *News* article can only be used to denote favoritism, and not the employment of relatives, for no relatives of the head of any department are employed by the Board, except in the case of Mr. and Mrs. Pierson, and these two were in the employ of the Board long before they were married.

2. One case of nepotism brought to the particular attention of the senate finance committee was that of O. C. Pierson and his wife.

No one representing the State Board of Health was ever asked for an explanation relative to the employment of Mr. and Mrs. Pierson. If the matter was brought to the attention of the finance committee, it would seem but fair that the Board should have been given an opportunity to explain the situation.

Mr. Pierson entered the employ of the Board in 1888 as an office boy in Red Wing. Mrs. Pierson entered the employ of the Board, as Miss Anderson, in 1894, in Red Wing. In 1903 Mr. Pierson and Miss Anderson were married, and Mrs. Pierson left the employ of the Board. In 1908 the chief clerk of the vital statistics department resigned without warning, embarrassing the Board. Mrs. Pierson was urged to come back to the Board, for she was well equipped to do this work. It was understood that she would not have to give her whole time to the work, but that she should keep a record of her time. The amount of time that Mrs. Pierson has been giving the Board has gradually increased. She holds the position, not of a clerk, but of the director of the division of vital statistics.

If Mrs. Pierson was to give up her position, as she has often suggested doing, the Board would have to employ a trained statistician to take her place. Such a statistician would in all probability be a man, and the Board would have to pay at least one thousand dollars more a year than Mrs. Pierson now receives.

Mrs. Pierson's work has been highly praised by representatives of the Census Bureau in Washington. Work that goes from that division

to Washington has been commented on as needing fewer corrections than work going from many of the other states. The authorities of the Census Bureau have received an outline of the methods of handling vital statistics in this office, and have commented very favorably upon them.

Mr. Pierson has never liked the idea of his wife's coming back into the office. She is doing a favor to the Board in accepting the position, rather than the Board doing a favor to either Mr. or Mrs. Pierson in employing her.

3. Mrs. Pierson is frequently absent.

This has already been explained under No. 2, above. The person who made this criticism probably had been given the information that Mrs. Pierson did not keep full office hours. This is well recognized, but she does keep track of her time and is paid for the time she actually puts in. As a matter of fact, she is not often absent, but, when she is, it should be clearly understood that it is at her expense, not at the expense of the Board.

4. This strain of nepotism seems to permeate the entire department, extending to the branch stations located in other cities. So strong a hold do these benefactors seem to have upon the positions that when Dr. Bracken threatens to remove them from their places they brandish their fists in his face and dare him to make the removal under pain of exposure.

Where any grounds for making such a statement can be found it is hard to understand. At the branch laboratory in Duluth there are two persons employed: the bacteriologist in charge and the office clerk. At the branch laboratory in Mankato only one person is employed: the bacteriologist in charge. The Director of the Division of Preventable Diseases has the privilege of nominating the bacteriologists who are in charge of these branch laboratories. The Board can accept or reject these nominations. There is absolutely no ground for any charge of nepotism in relation to any of these three positions.

The statement which is made that certain ones brandish their fists in my face, and dare me to remove them under pain of exposure, is ludicrous. The employes of the Board smile over this statement. So far as Mr. and Mrs. Pierson are concerned, I have never for a moment thought of discharging either one of them. Mr. Pierson is a most competent man, and has been in the office longer than I have. I would certainly not think of discharging Mrs. Pierson, for I realize that the Board is the one that is benefiting by her presence rather than she, and I realize that the

Board, in its straightened financial condition, is in no position to exchange Mrs. Pierson for a statistician who would cost at least one thousand dollars more a year if he were to do the work that she is doing.

5. Just what the exposure would be in case the doctor made good his threat to remove, and the persons removed would carry out their threats, is not certain in all cases.

This might be classed as a joke. If anyone can injure me by any legitimate statements he can make concerning the manner in which I have conducted this office, I shall be pleased to have him do so.

6. One thing has leaked out sufficiently to warrant its publication as one of the clubs some of the employes hold over the head of the doctor in retaining their jobs.

This relates to the copying of births. The facts of the case are as follows:

The Census Bureau at Washington asks for transcripts of deaths from all of the registration states. The registration states are those recognized as having a sufficiently accurate return of deaths to be used by the Federal government for statistical purposes. The Federal government pays three cents a copy for these transcripts of deaths. The registrar of vital statistics of each state is requested to furnish these transcripts for the Census Bureau at Washington. In some states the registrar does the copying himself, and receives the money from the Federal government. The copying is undoubtedly done outside of the working hours of the registrar for the state. In other states the registrars hire copyists, and in many instances secure these copyists at a fixed rate, which amounts to less for the entire work than three cents a copy.

In Minnesota this copying of death certificates has been turned over to clerks in the vital statistics division. These clerks have done this work outside of office hours, and have received the benefit to the full amount of money paid by the Federal government, namely, three cents a copy.

The Census Bureau, wishing to check up the births for Minnesota, asked for transcripts of our records of births for the year 1908. This is the only year for which transcripts of births have been sent to the Census Bureau. The transcripts which have been furnished since 1910, when Minnesota became a registration state, refer to deaths only.

For the birth transcripts furnished in 1908 the Census Bureau paid three cents apiece, the same fee as that allowed for deaths. This Board is required by law to furnish copies of all our birth

and death records to the clerks of court at the end of each year, and a fee of two cents was at that time allowed for copying the birth records for the clerks of court. Not wishing to demoralize these rates, I offered those who applied for positions when we were called upon to make the transcripts of the 1908 birth records for Washington, a fee of two cents for each certificate, the same basis as that under which we were working in making our records for the clerks of court.

It is true that I did benefit to the extent of one cent per copy for these Washington transcripts for the year 1908. The newspaper clipping stated that the number of these names ran over 100,000. The truth of the matter is that the transcripts numbered but 43,023. Those who did the copying for Washington made good wages, and were apparently well satisfied. I was entirely within my rights when I withheld a portion of these fees. The transaction was between the Federal government and myself, and the state had nothing whatsoever to do with these fees.

The births reported since 1908 as compared with that year are as follows:

1908 .....	43,769
1909 .....	45,082
1910 .....	45,059
1911 .....	46,779
1912 .....	49,800
1913 .....	51,396
1914 .....	53,606

It will be noted that the number of births reported last year was nearly 10,000 in excess of those reported in 1908, the year copied; and Mrs. Pierson is largely responsible for this improvement. We have every reason to feel that if the Census Bureau were to establish a registration district for births,—and it probably will do so soon,—as it has for deaths, Minnesota would now come into the group; but it could not have done so in 1908.

7. No part of the money received for the copying of births ever reached the state treasury.

Why should it? It was not a state proposition. It was payment by the Federal department for services not rendered during office hours by anyone connected with the State Board of Health.

8. The governing members of the State Board of Health permitted unusually high salaries to persons occupying the higher positions, in which little or no work is being done.

This is an interesting statement. What are the facts?

First, who are the "governing members of the State Board of Health"? It is to be assumed

that all of the members of the State Board have the same authority.

Just whose salary is referred to in this statement it is hard to understand.

In 1897, when I first became secretary, my predecessor was receiving \$3,500 per annum, was also permitted to do outside professional work, and held a professorship at the University. When I came into the office I was in exactly the same position. At the suggestion of Governor Lind, I gave up my private practice, and devoted my entire time to the State Board of Health and the University.

The funds of the Board were very small at that time, and I suggested to the Board that it should reduce my salary from \$3,500, that of my predecessor, to \$2,500 per annum, as I had other sources of income. The Board took no action, and at the April meeting, 1897, I reduced my own salary \$1,000 per annum. The state had the benefit of this for five years. Some of my friends at the time said that I was a "d—— fool"; that no one would appreciate my action. I now think my friends were right; no one, apparently, has appreciated my action in this respect.

In 1902 my salary was restored to \$3,500 per annum by the Board without any request from me for such action,—in fact, somewhat against my wishes.

In 1907 the State Board of Health offered me a salary of \$5,000 per annum if I would give up my University position, and devote my whole time to the State Board of Health work. This proposition I accepted.

The Legislature of 1911 made it impossible for the Board to continue this contract by putting a rider on the appropriation bill, limiting the salary to be paid me out of funds appropriated for the State Board of Health to \$4,000 per annum.

It must be remembered that I had given up my University connection, which, as a matter of fact, placed me in line for a pension, and which possibility of pension\* was given up with my University position.

In 1913 the rider on the appropriation bill made it possible for the Board to pay me \$4,500.

The Board, recognizing that it could not fulfill its agreement to pay me \$5,000 for my full time, put itself on record that I was under no obligation to give my whole time to the Board for \$4,000 a year. I was therefore in such position that I might have taken up other work. As a matter of fact, I have not done so.

It is worthy of note that I am receiving the



same salary now that I was receiving jointly from the Board and the University when I was first appointed to this position eighteen years ago, although the cost of living has gone up enormously during those eighteen years.

The state will never again have my whole time for \$5,000. It is because I am interested in my work and believe that the people at large appreciate what I have done that I have remained in the work, and not because of any recognition on the part of the Legislature of what I have done.

One thing further may be stated here: In a recent grouping of efficiency of the various State Boards of Health throughout the country, Minnesota stands fourth. I think I deserve some credit for the fact that Minnesota is in this position. Further, two of the states that now stand above Minnesota were not the equal of Minnesota a few years ago. The one that holds first place now, New York, reached its present position only after the reorganization of public-health work in that state two years ago. The one that holds third place, Pennsylvania, nowhere approached the efficiency of Minnesota until about eight years ago, when its work was reorganized and hundreds of thousands of dollars placed at the disposal of the health department of that state.

9. The board, instead of reducing the salaries of the various men and women occupying "higher up" places, has, on recommendation of Dr. Bracken, allowed all of these salaries to stand where the position was retained, and has not only hammered down the large number of clerks and stenographers to a minimum but has also reduced the salaries of these lower-paid people.

Let us see what the Board was actually compelled to do when the Legislature failed to make a sufficient appropriation to carry it through the present fiscal year.

	Saved on	
General Fund:	monthly wage	Reduced to
Dr. H. W. Hill (part time)....	\$100.00	000.00
Director of Exhibit.....	150.00	000.00
Sanitary Engineering Fund:		
Consulting Engineer (part time).....	233.33	000.00
Engineer .....	75.00	100.00
Communicable Disease Fund:		
Clerk (4½ months).....	65.00	000.00
Clerk .....	45.00	000.00
Clerk .....	40.00	000.00
Laboratory Fund:		
Director, Division of Sanitation		
(part time) .....	141.66	000.00
Bacteriologist .....	100.00	000.00
Bacteriologist, branch laboratory, .....	83.33	000.00
Clerk .....	60.00	000.00
Boy (quit; place not filled)....	40.00	000.00
Pasteur Institute Fund:		
Boy (quit; place not filled)....	45.00	000.00
Total monthly wage saved....	\$1,178.32	

Total saved, three months.... 3,634.96  
Add 1½ months extra, 1 clerk 100.00

Grand total saving, three  
months .....\$3,634.96

It would appear from the above that the charge that the Board cut the little ones and left the big ones, was hardly true; in fact, this statement might be made in stronger terms. It is true that a number drawing small wages were dropped entirely, but that was because the field work and the laboratory work were stopped for three months. The ones who were not dropped had plenty to do to keep them busy catching up with the things that they were behind on, during these three months.

While the saving of \$3,634.96 may appear to be economy, it is not. Economy and efficiency must go together. The efficiency of the Board's work has been reduced to an extent far in excess of this apparent economy.

10. The senate went on record to make the secretary of the board appointive by the governor instead of elective by the members of the board.

Yes, it did, and it should not be very proud of its act. Fortunately, as stated in the article, the action of the Senate was not endorsed by the House. The positions in this Board have never been under political control. It would have been a great mistake to have made this a political appointment, as intended by the Senate bill, for this would have made it possible to change the one holding such position every two years. It is generally recognized that good men cannot be secured for such a position if the tenure of office is short. As a matter of fact, no competent physician capable of filling such a position would give up his private practice to take such a position.

It was stated that this bill was introduced "to scare Bracken." If that was its intent, it failed in its purpose, for I took no personal interest in the matter. The one now holding the position of secretary to the Board would not have been one of those to suffer had the bill become a law.

#### A LETTER FROM MR. PIERSON

[The following letter was addressed by Mr. Oscar C. Pierson to the President of the State Board of Health, Dr. W. A. Jones, under date of July 12, 1915.—THE EDITOR.]

Dear Doctor: Herewith you will find a clipping from the Northfield News [printed in Dr. Bracken's paper, above].

The primary object of the author of this article in the Northfield News is, undoubtedly, to attack Dr.

Bracken. The article also makes statements about Mrs. Pierson and myself which virtually charge us with blackmail.

I do not think I ought to let this charge go without answer and an opportunity given to prove it. To anyone who is familiar with the Board's work it is perhaps needless to say that this particular charge is malicious, an absolute falsehood, and the very antithesis of the facts. Most of the other statements in this article are absolutely untrue or so misrepresented and distorted as to equal falsehood.

As this is properly a matter for the Board to consider, I would like to make a statement in some detail for Mrs. Pierson and myself.

I am entirely at a loss to understand the reasons for this newspaper attack upon me. So far as I know, it is the first that has occurred. It hardly seems possible that lack of fealty to my political party can have anything to do with it, though it may be that I am guilty of such lack of fealty, for I am a Republican; yet I have supported Govs. Johnson, Eberhart, and Hammond; but I have never been politically active except for small efforts in the Legislature relating to bills in which the Board has been interested, and in defending the Board and Dr. Bracken. While I am glad to defend Dr. Bracken at all times because of my personal regard for him, my activities have been based wholly on what I conceived to be just and proper and my duty to the Board.

Probably some of the members of the Board are not familiar with the history of Mrs. Pierson's and my own connection with the Board. I desire to give you this history very briefly, and, incidentally, certain information relative to some of the statements in the newspaper article.

I entered the employ of the Board as office-boy under Dr. C. N. Hewitt, Secretary, at Red Wing, in 1888, at ten dollars a month.

In 1893 I became chief clerk of the Board.

Mrs. Pierson, then Miss Anderson, entered the employ of the Board at Red Wing in 1894 in the Vital Statistics Department.

In 1894 the Board's offices were moved to St. Paul and located in the Pioneer Press Building.

In 1897 Dr. Hewitt retired as Secretary, and was succeeded by Dr. Bracken. Dr. Bracken made no request of the Board to change the personnel of the office.

In 1903 Miss Anderson and I were married, and she left the employ of the Board.

In August, 1906, the Board gave me the title of Assistant Secretary.

In September, 1908, Miss Hayes, chief clerk in the Vital Statistics Department, unexpectedly resigned, and left the employ of the Board. This, I realized, left the Board in a bad position, as it had not the funds to import and employ a trained statistician. Dr. Bracken knew that I did not wish Mrs. Pierson to again enter the employ of the Board. Since our marriage she had, at Dr. Bracken's request, occasionally done odd jobs of typewriting (at which she was more than usually expert), such as taking the minutes of the Board's meetings, etc., and was paid by the hour. This was done against my wishes. Dr. Bracken told me he knew of no available person to replace Miss Hayes except Mrs. Pierson, and asked me if I would object if Mrs. Pierson came into the office for two or three hours each day on the hour-pay basis. I told him if Mrs. Pierson

wished to do this I should not object, although I would rather she did not.

Mrs. Pierson accepted this offer, and in the succeeding years has given more and more of her time to the work. What she has done for the Vital Statistics Department speaks for itself.

I have often felt embarrassed because Mrs. Pierson has been employed in the same office with me, realizing how some people, without ascertaining the facts, might jump at a wrong conclusion. It seems to me, however, that the only question for anyone but Mrs. Pierson and myself to consider, is as to whether or not the State is getting the right service for its money.

I have never had anything to do with her advancement or pay, and have not even been consulted about it.

The article states, further, that Mrs. Pierson is frequently absent. As a matter of fact, she is absent very little; but, as stated before, she is paid for her services by the hour, and when she is absent it is her own loss only.

As regards certain moneys paid Dr. Bracken by the Census Bureau, about which the newspaper article accuses me of blackmailing him for my position with the Board. I knew absolutely nothing about this, and had even forgotten that transcripts of birth reports were ever made for the Census Bureau, until about three months ago, at which time Dr. Bracken's attention was called to a series of untruths, misstatements, and misrepresentations relative to the vital statistics work of the Board, which, it appeared, could emanate only from someone intimately familiar with the work in this office, and I was asked if I had given them out or knew who had done so. One of these statements was to the effect that Mrs. Pierson had withheld certain of the fees paid for the transcripts made for the Census Bureau. Dr. Bracken told me at that time that no part of this extra money had been received by Mrs. Pierson.

The law requires this Board to send copies of all our records of births and deaths to the clerks of court at the end of each year. In 1908 and 1909 much of this work was done on a piece basis, the Board paying two cents for the copying of a birth record and three cents for the death record.

The United States Census Bureau secures from the registrars of Vital Statistics in the registration group of states transcripts of all death records, for which it pays the state registrar three cents per copy. If the state registrar can do or get this work done for less money than the Census Bureau pays him for it, that is his privilege, and I understand that that has been the custom in some of the other states. The death records have been copied for Washington since 1909, covering the years 1910, 1911, 1912, 1913, and 1914. This work has been done under the personal direction of Mrs. Pierson, who receives her authority each year from Director Harris of the Census Bureau. The copies have been made by the regular clerks in the Vital Statistics Division, but outside of office-hours, and each copy has received her full fee of three cents for each copy.

In 1909 Dr. Bracken asked the Census Bureau if it would not be possible to admit Minnesota as a registration state for births. To determine its fitness the Census Bureau asked Dr. Bracken for copies of the birth records for the year 1908, and paid him three cents per copy, which is the set price of the Census Bureau for both birth and death transcripts, although the birth transcript

is much more easily made. The State Board of Health was at the time paying two cents each for copying our birth reports for the clerks of court, which amount is ample. It seemed demoralizing and unfair to pay clerks three cents for doing the same work for the Census Bureau. Certain clerks immediately made application at the office for this outside work, and were eager and more than willing to do it at the rate of two cents per transcript. The year 1908 was, and is still, the only year for which transcripts of births have been made for Washington. Dr. Bracken withheld, as shown, a portion of these fees, as he had a perfect right to do, as this was money paid to him personally by the Federal government for services outside the office and office-hours.

While I now recall much about this, I did not, as already stated, know whether the clerks were paid two or three cents for making these transcripts, for it was outside work and had nothing to do with the accounts of the Board, which were kept by me. The newspaper articles states that these birth transcripts numbered over 100,000, while, as a matter of fact, but 43,000 transcripts were made.

As to my relations with the Board and Dr. Bracken: I entered the Board's employ when a young boy, and have continued in its employ for twenty-seven years. This has been my life-work. I know of no other calling where I would be of any special value. I do not think that I am being overpaid one penny if my serv-

ices to the Board in my present position are satisfactory. I have never asked the Board for an increase in salary, and have always felt that any advancement given me was because the Board felt that I deserved it.

As you know, I am not a physician, and have only a practical knowledge of public-health work. If my services are not satisfactory, I should be replaced by some one who can give satisfaction; but I do not think I should be replaced for the purpose of creating a cheaper position.

Dr. Bracken has never given me any reason to think he would like my removal or discharge, although I have felt at time that because I am not an M. D., some have considered my title of Assistant Secretary as somewhat incongruous. Dr. Fox, in his report on Health Administration in Minnesota, states that the logical head, in the absence of the Secretary, would be the Director of the Division of Preventable Diseases, but that because of the office location this is not entirely feasible; that while I, as Assistant Secretary, perform administrative duties in the absence of the Secretary, my real work is that of Chief Clerk or Assistant to the Secretary.

I have written this letter because it seemed to me that I, better than anyone else, could give the members of the Board some of these facts. It is perfectly evident, of course, that I am trying to place myself before you in what I consider a true light.

(Signed) OSCAR C. PIERSON.

## THE PRACTICAL VALUE OF AUTOGENOUS VACCINE THERAPY, WITH CASES\*

BY CHARLES H. PIERCE, M. D.

WADENA, MINNESOTA

In behalf of a truly specific therapy, and one too seldom used, though easily within the grasp of every practitioner, we are led to bring to your notice this small series of cases that it may, perhaps, stimulate the effort to try that which has too long been deemed impractical or even impossible. Vaccine therapy, based on principles laid down two and a half decades ago and embracing the truth and beauty of true science in its entirety, is not the property of a chosen few, who by virtue of their position, professional or geographical, can retain it for use in their cases from which they report the best results.

The technic is simple; and, as for the much-talked-of initial outlay of apparatus, there is absolutely no ground, for the work may be easily done in the office of any practitioner.

What is more common in the every-day routine practice than multiple furunculosis, or any of the infections due to the pyogenic group of organisms? What is the best method to pursue in

these cases with the patient's welfare in view, to say nothing of the highest professional ideal? We are all agreed that to open and drain the single focus is good practice, and we proceed along the same lines in case we have several more foci appear. However, when we encounter a case of multiple foci, we cannot continue to open and drain, as the patient will not permit such treatment when it seems to be giving no relief.

Is the appearance of other foci an evidence of poor management of the initial?

How are we to treat cystitis, chronic catarrhal otitis, pyorrhea, and the other infective processes without number, which cannot possibly be reached with the scalpel? The surface cases, such as furunculosis, may have, in a small way, a bare chance of defense in the local treatment. The invading organism is usually of low virulence, at least low enough to be successfully walled off by the immigrating leukocytes; and the scene finally ends with the liberation of the slough through an opening made by the autolytic action

\*Read before the Upper Mississippi Medical Society, Jan. 12, 1915.



of the leukocytes following lines of least resistance.

Beyond a doubt, in the small series of cases herein to be presented we have proof of the specificity of the autogenous vaccine. The monumental works of Rosenow, which have reversed the opinions of the highest medical authority of the world and thrown to earth the false theories of older medicine, have for their theme the perfection of the cycles of the various pathogenic organisms under various circumstances of culture, and, following this, the fitting of the proper check in the form of the antibody to the organism, with a subsequent subjection of the invader.

Let us not seem to wander from our subject of the practicability, for the efforts of such men as Kreuscher, Billings, Gilmer, Mayo, Parker, and Wolff, have thoroughly established vaccines on a working basis. The latest studies of gastrointestinal, pleural, endocardial, pericardial, arthritic, and myalgic troubles have given us invaluable information regarding the etiology of those mighty factors of medicine that have long been treated symptomatically. These have been made to yield to vaccine therapy, in clearing up the secondary troubles as well as disclosing the hidden cause.

The mouth, so long disregarded even in institutions and practices where most careful physical examinations were conducted, has at last come to its own. We are justly endowing it with the title: "The Filter Foul." Aside from tonsil work, and an occasional cyst, the mouth has been left to the tender mercies of the dentist for the small care it has seemed to need as compared to the rest of the body. But now we come to the hard cold fact that here is the base of operations for organisms that are causing the greatest of difficulties. It has taken years to disclose this fact; and, now that it is established, we receive but poor support from our dental brother. He insists that scaling the teeth together with a thorough washing will give results, when the real seat of trouble is in the root canals or alveoli, as remote from such superficial ablutions as though it were in the leg.

However, a few men like Dr. Hartzel of our State University, have come forward with some very original and complete work. But the fact remains that every day good dental work is being done on teeth whose roots are bathed in pus, and whose alveoli are the harbor of organisms that cause metastasis in joint, heart, muscle,

and where not? We of the medical profession are not scot-free from the errors due to neglect of examination. The armamentarium required for careful oral examination, is not beyond the reach of any one of us. Too often the case comes to us with a frank toxemia, but obscure clinical picture as regards etiology and predisposition. We are satisfied to use palliative measures and watchful-waiting tactics until nothing but the bald occiput of opportunity presents and we have a severe storm of metastasis, or our brother across the way is called, or both.

The basic principles of autogenous vaccine therapy may be defined as follows:

1. The specificity of the vaccine prepared from culture obtained from the actual seat of infection.
2. The constitutional reaction against the inroad of the injected material, and its interpretation.
3. The fluctuating standard of dosage controlled by the virulence and variety of the organism.
4. The end-point indicated by clinical phenomena and the laboratory findings.

The theory of autogenous stimulation, not a new thing nor yet so corroded by age as to be trodden under foot as a thing found wanting, is an outgrowth of the following: Koch's laws, Ehrlich's side-chain theory, the theory of opsonins and agglutinins, and the practical experiments of Rosenow in graduated oxygenation coupled with careful clinical observation.

It is no longer doubted that bacteria conform to the laws of transfer, whether through animals of the same species or different species, or through artificial media. We cannot but accept the side-chain theory, which proves to us beyond a doubt that in the serum of the problem in question there are developed antibodies that conform to the invading organism. The result is a fitting of the two, as the key fits the lock, to use the time-worn expression, the activity of the organism being checked and finally stopped.

There surely can be no question concerning the formation of agglutinins in the blood, which the Grüber-Widal laboratory has so simply and wonderfully worked out and given to us. As to the formation of opsonins through whose agency the white cells are able to engulf many times their normal capacity of organisms, one is indeed surprised to note the change that takes place during the course of a vaccine.

Rosenow has shown us the various gradations

of variety and morphology that different oxygen-pressures bring about, and has caught and held for our inspection the missing links of the chain of relationships between both acute and chronic bacillary and coccogenous affections.

Leading clinicians who have been in close contact with the reformation work, have seized the golden opportunity of bringing the cold classical laboratory compilation into practical use. They are harnessing the true weight, long borne by innocent theories, on truly responsible shoulders.

Since the main body of this paper was written, there has been brought to our notice the late work of Kreuscher, of the Murphy staff, on auto-sensitized vaccines. We are indeed glad to have such an advance made in this very interesting and efficient mode of therapy. By using blood serum of the patient in culturing the organism, and later more inactivated serum for the menstruum of the vaccine, the dose in units may be increased from millions to billions without reaction and with much greater efficiency than the straight vaccine. Comparatively one dose of vaccine, auto-sensitized, will do as much as ten ordinary vaccines, since the sensitization, which is ordinarily the result of the vaccine action, is already accomplished without the tremendous reaction we get in ordinary vaccination. It is the perfection of the vaccine therapy, such as we hardly hoped for, and yet is hardly practicable in the office of the general practitioner. The technic is somewhat laborious, and the waiting hours, 158 in all, make the use of the auto-sensitized product out of the question in the severe acute conditions, where speed is essential in curbing intoxication. The technic will, without doubt, be worked out a great deal finer than these first few trials have permitted; and the whole will be made the property of the man in general work. As it is, in the sub-acute and chronic cases we surely have the ideal treatment in auto-sensitized vaccine.

The technic of vaccine making is simple, interesting, and, withal, satisfying. The cultures are made on media easily obtainable from any of the standard therapeutic manufacturers; and the first implant is made with culture taken in any way suiting the operator's fancy. The most common media for all-round office use are serum agar slants. Incubation at 37 C. for twenty-four hours is usually sufficient for the necessary growth. The question of incubator is handled in many ways. The one in use in our office is an old oven belonging to an oil-stove. This is lined

with asbestos, and fitted with a 32 c. p. electric lamp that is controlled by a common thermostat.

Conditions of oxygenation or degree of anaërobiosis are easily made to suit the organism in question with a plug of sterile cotton pushed well down into the tube, and saturated with equal quantities of 10 per cent pyrogallic acid and decinormal sodium hydrate. The tube is corked, and sealed with paraffin wax. The oxygen is absorbed in the oxidation of the pyrogallic acid, and a condition of anaërobiosis thus established.

The grown culture is washed from the slant media with sterile salt solution; and, after pouring the emulsion into a sterile tube, it is well shaken to break up any clumping that would spoil the count. A known small amount is then taken out, and diluted sufficiently to allow standardization. This is stained with a drop or two of carbol fuchsin, and a drop is put upon a blood-counting chamber, and the number computed as in blood-counts. Another method is that of mixing equal parts of fresh blood and bacterial emulsion on a slide, smearing, staining, and counting, using as a comparative the red cells, taken to be normal or 5,000,000 per c. mm. The mother emulsion is now put in a water-bath at 60 C. for an hour. This does not require constant attention, as the flame is easily regulated, and an occasional agitation will serve to keep the suspension well divided. Temperature limits of 58° and 61° should be heeded, as a temperature below the former would give an unattenuated product, while one over the latter would cause a break in the cell-wall, and a liberation of the endotoxin, which would act as a poison and completely defeat the purpose. A drop or two of 0.5 per cent phenol is now added to the suspension for the purposes of antiseptis. After fastening a piece of sterile rubber dam over the top of the tube, the work of making the vaccine is complete.

The injections are made with a common ground-glass Luer syringe, such as are commonly used in pocket hypodermic outfits. The rubber dam on the tube is cleaned and sterilized with alcohol and phenol. The tube is inverted while the dam is punctured, and the required amount of vaccine aspirated, after which sterile normal salt solution or sterile water is drawn in to wash out the needle and make the proper dilution. The arm is easily prepared by painting a small area with tincture of iodine, and the injection made in the well known way.

The injections are three to five in number, and the dose varies from 30,000,000 to 200,000,000



for the initial, with an increase of about 50,000,000 to 100,000,000 for each succeeding dose. The injections are given at intervals of not more than five days, as the power of stimulation seems lost if the interval is greater than that.

For laboratory controls we have done blood-counts, white and differential and phagocytic, as well as opsonic indices, with very gratifying results. In both the increases were very steady, and the chart-tracings of the general changes were in accord with these laboratory findings. The opsonic index is not easily done, and need not be done by the man in general work; but we have seen fit to determine it in substantiating our work in every way possible.

The clinical control is indeed striking. About two hours after the injection we note a slight rise in temperature, then a severe chill, after which the temperature rises from 2.5 to 5 degrees, the face and neck are flushed, and the patient complains of hot flashes. The pulse increases quite rapidly, sometimes going to 130, but we do not hesitate to give the vaccine in endocardial complications in a case of arthritis. Anywhere from six to eight hours marks the maximum point in the temperature, and then it falls quite rapidly, the patient returning to normal in about twelve to fourteen hours. In about twenty hours the patient will complain of tenderness at the site of injection, and examination will reveal a small, diffuse, brawny swelling, which lasts about two days and does not inconvenience the patient materially.

#### CASES

**CASE 1.**—J. T., male, aged 38; came to the hospital with a history of having cut his finger with a glass telephone-insulator seven days previously. The wound was very insignificant, and there was little or no local reaction. The hand and arm were swollen, and the swelling sharply demarcated. Over the swollen area there was a diffuse dusky blush. There was no adenitis, either antecubital or axillary. Temperature, 103°; pulse, 118. The patient was given ether anesthesia, and the arm incised in ten places, eight of which were through and through; drainage with tubes. The incisions ranged from four to eight inches in length.

Culture showed streptococci. Bichloride dressings, in both the open and closed methods, were used for forty-eight hours. The line of demarkation crept steadily upward toward the shoulder; and the swelling and edema increased, as did the redness. The temperature rose to 104.4°, and the patient became delirious. Pulse 140. The discharge from the wound was meager, and looked not unlike blood-serum. W. B. C., 7,000; R. B. C., 3,500,000.

Culture showed streptococcus, 90 per cent; staphylococcus, 10 per cent. Dose given was 50,000,000. In two hours the temperature was 105°. In six hours the

patient had had five severe spells and the temperature was 106°; pulse, 155, or at least that was as near as we could get it. In 12 hours the temperature was 102°; pulse, 118. The site of injection showed profuse hemorrhage, which had begun to get very dark. In 20 hours the temperature was 100.8°; and the pulse, 100; and the incisions began to discharge pus which yielded in smear streptococci, 75 per cent, and staphylococci, 25 per cent. In 65 hours an injection of 100,000,000 was given. The temperature at the time was 100.6°, and the rise in four hours was to 103°. The pulse rose from 98 to 100. This time the patient had four chills, of moderate severity. The flow of pus was very markedly increased; and the swelling and redness began to recede. In 70 hours the third dose was given, 160,000,000, following which the temperature rose from 99.3° to 100°; pulse, from 90 to 98. The incisions were granulating well. There was no chill following the last injection. Blood-count at the end of 160 hours was W. B. C., 28,000; R. B. C., 4,500,000; the differential neutrophils, 80 per cent; the lymphocytes, 10 per cent; L. mononuclears, three per cent. The patient left the hospital on the tenth day with normal temperature and pulse, and made a twenty-five-mile trip home. His wounds were discharging some, but he made an uneventful recovery.

**CASE 2.**—B. C., female; aged 6; came to hospital with ruptured appendix, and a very severe cystitis. Surgical treatment for the appendix condition was instituted; and after five days of confinement the bladder trouble was worse than the abdominal. Frequency of urination and the burning were almost unbearable. Twenty-four-hour growth of culture taken from centrifuged urine showed bacillus communis and staphylococcus aureus 90 and 10 per cent, respectively. Blood-picture: W. B. C., 12,000; R. B. C., 4,800,000. The temperature at time of first injection was 98.4°; pulse, 78. The first dose was 66,000,000. In two hours the patient had a chill and rise of temperature to 100.2°, and three involuntary urinations. The patient's temperature at the end of 12 hours was normal, as was the pulse. The local reaction was very stormy as the involuntaries continued for nine hours, and the patient stated that the bladder felt like it was full of worms. Control of bladder returned in 70 hours, and the second dose was given, 132,000,000. There were nine involuntary urinations in the first six hours, following: the temperature rose from 98.6° to 100°; the pulse from 76 to 104, following a chill. Complete return to normal in 10 hours. Seventy hours later the third dose was given, 200,000,000, following which there was no reaction local or general. The patient left the hospital one week later, and the urine had cleared up markedly. Subsequent reports are to the effect that the condition has absolutely cleared up.

**CASE 3.**—H. M. C.; male, aged 60; brought in for an x-ray examination of spine. Injury due to fall from ladder, resulting in complete paraplegia and loss of bladder and rectal control. Later, however, retention of urine occurred, and catheterization every eight hours caused a cystitis as well as did the retention. Culture taken from centrifuged urine showed after twenty-four hours of growth, bacillus coli communis 95 per cent, streptococcus aureus 3 per cent, and streptococcus longus 2 per cent; W. B. C., 6,000.

First dose, 50,000,000; temperature, 99.2°; pulse, 90, and two hours later, 99.5° and 94; six hours later, 101° and 106. Incontinence returned, and urinations were



very frequent. Fourteen hours later, temperature,  $98.6^{\circ}$ , and pulse, 84.

Second dose, 100,000,000, given seventy hours after the first dose. Temperature,  $98.6^{\circ}$ ; pulse, 76; two hours later,  $99^{\circ}$  and 78, chill and hot flashes; six hours later,  $99.8^{\circ}$  and 88; site of injection very red and swollen; urine increased, and there was much pus.

Third dose, 150,000,000, given eighty-six hours later. Temperature,  $98.2^{\circ}$ ; pulse, 74; two hours later,  $98.6^{\circ}$  and 78. Chill and hot flashes followed by rise of temperature to  $99.8^{\circ}$  and pulse to 98. Involuntaries decreased, but pus increased. Site of injection very red and painful.

Fourth dose, 200,000,000, 78 hours later. Temperature,  $98.4^{\circ}$ ; pulse, 78; two hours later,  $98.8^{\circ}$  and 90; six hours later,  $98.8^{\circ}$  and 80. No chill and no local reaction at point of injection; pus, markedly decreased.

Fifth dose, 1,000,000,000. No reaction, local or general; and the involuntaries stopped completely. Pus, very small in amount; W. B. C. 16,000.

Subsequent history: The man left the hospital six weeks after the final dose and suffered no return of the cystitis, and was beginning to recover bladder control, due to nerve regeneration, as was shown by his partial recovery from the paraplegia.

CASE 4.—D. S.; male; aged 14; came to hospital with diagnosis of "pink eye." Direct smear showed diplococcus of Neisser. Conjunctiva very edematous; and adjacent tissues so involved that the eye was swollen shut, nasal duct occluded, and throat nearly swollen shut, making swallowing very difficult. Moderate discharge. Temperature,  $104^{\circ}$ ; pulse, 128. Duration of infection, six days. Culture on serum agar showed, in thirty hours, staphylococcus 60 per cent and gonococcus 40 per cent; W. B. C., 8,000.

First dose, 100,000,000. Temperature,  $102.8^{\circ}$ ; pulse, 126. One hour after injection the temperature rose to  $104^{\circ}$ , and the pulse to 140. The patient had a very severe chill about one hour after the injection, and several hot flashes. Nineteen hours later the discharge was very marked, the temperature had lowered to  $102.8^{\circ}$ , and the pulse to 108. Seventy hours later the second injection of 200,000,000 was given, the temperature at that time being  $102.2^{\circ}$ , and the pulse 104. Two hours later the temperature was  $103.4^{\circ}$ ; and the pulse, 108. Six hours later the temperature was  $104.3^{\circ}$ ; pulse, 116. The reaction, both local and general, was very severe; and the pulse fairly ran from the eye. Direct smear showed about 50 per cent each of the two organisms first found. The swelling in the throat and nose was greatly reduced, and the W. B. C. count at this time was 20,000. Seventy-eight hours later the third dose of 400,000,000 was given. The temperature was  $101.2^{\circ}$ , and the pulse 96. In two hours the temperature rose to  $102.4^{\circ}$  and the pulse to 99. In six hours to  $102.8^{\circ}$  and 100. Moderate chill, but no flashes and the pus was much increased. Twelve hours brought the temperature to  $99.2^{\circ}$ , and the pulse to 90. Seventy hours later the fourth injection of 500,000,000 was given. The temperature at the time was  $98.4^{\circ}$ ; the pulse, 80. The maximum rise in six hours was one-half degree, and the pulse increase was eight. The pus was much decreased, and the nose and throat were almost normal while the patient was able to open the eye with ease. W. B. C., 32,000.

CASE 5.—L. E. I.; female, aged 30; came in with a

history of having had two deep-seated subfacial abscesses, which had been opened and drained. These foci had appeared about one month apart, and at the time of entrance the patient had a very severe periostitis on the right thumb. This was opened and drained, and cultures made, which grew staphylococcus pyogenes aureus. The temperature was normal, pulse normal, and W. B. C., 7,000. Four doses were given in this case, 100,000,000, 200,000,000, 500,000,000, and 700,000,000, respectively, with characteristic reaction, both local and general. The W. B. C. were increased to 20,000, and the patient has suffered no recurrence since.

CASE 6.—A. K.; female, aged 28. History of five attacks of periostitis of fingers and thumbs, and at the time of entrance had a very severe infection on the thumb of the left hand, and another beginning on the index finger of the same hand. Temperature and pulse, normal; W. B. C., 6,000.

Four doses of 100,000,000, 200,000,000, 300,000,000, and 350,000,000 were given. The reaction following was typical in every way. The maximum rise of temperature was three degrees, and the site of injection of the last dose showed a tremendous local reaction, but without any rise in temperature. W. B. C., 16,000. The gain in weight in three weeks was eight pounds, showing the improvement of general condition.

CASE 7.—J. G.; female; aged 40; entered hospital for the removal of fibroids and correction of retroflexion. History of previous multiple furunculosis over a period of twelve years; however, all free on entrance. Wound healed kindly, and recovery was uneventful until the twelfth day, when five foci appeared at various locations on her body, removed from the wound. The temperature was normal; pulse, normal. The wound opened on the fourteenth day, and discharged pus in large amounts. W. B. C., 10,000. Direct smear showed staphylococcus, as did the culture twenty-four hours later. The opsonic index was 1.5. A vaccine was made from the culture taken from both the wound and the opened furuncle. Four doses were given, beginning with 100,000,000, and increasing that amount each successive dose. The maximum rise in temperature was four degrees, and the pulse went to 110. The W. B. C. were increased to 32,000, and the opsonic index at the conclusion of the treatments was 4. The furuncles disappeared in twelve hours after the second dose without drainage, and the wound closed again without any granulation-tissue forming. The patient gained weight rapidly, and was in good condition at last report.

CASE 8.—V. D.; male, aged 7; came to hospital with history of injury to right hand, in which a small area of the outer skin had been scraped off. Three days later, the hand began to swell, and the axilla was very sore, although there was no adenitis. The arm was badly streaked, and the temperature was  $103^{\circ}$ ; the pulse, 106. Culture showed streptococcus; and the first dose, 30,000,000, was given twenty-four hours later, with typical reaction resulting. The patient was then turned over to his own physician, who completed the routine of injections, with a favorable result in four days. The injection which we gave in the office gave a bad local reaction, probably due to external infection, as the subsequent injections gave only the regular reaction.

CASE 9.—M. J. K.; female; aged 67; had furunculosis in external auditory canal for nine years at intervals so

short that the condition seemed almost continuous. Cultures showed staphylococcus albus and aureus. The case being ambulatory the injections were made in the office, and the patient allowed to go home, with instructions to keep accurate account of her temperature and pulse. The data thus acquired corresponded to the general trend of reactions in the other cases. After four injections, the discharge, which had been much increased, completely disappeared, and the patient has had no return of the symptoms since.

CASE 10.—S.; male; aged 46; came in with a history of having had much trouble with his teeth. Examination showed retracted gums, pus-accumulations around the roots, and much deposit on many of the teeth. He was advised to see a dentist to have the local condition cleaned up. The result was not satisfactory, as many of the teeth loosened; and finally the patient was seized with a very severe bronchitis, which confined him to his bed for one week. The teeth were extracted by a dentist under our supervision and under aseptic conditions. They were split, and the contents of the root canals cultured under both aerobic and anaerobic conditions, the latter giving much the better result. Smear showed staphylococcus, streptococcus, and a diphtheroid bacillus. Vaccines given in 30,000,000, 50,000,000, 80,000,000, and 150,000,000 doses, gave a very rapid and favorable result. The patient was discharged in good condition, and was instructed to have all his teeth gone over carefully after the wedge crowns were removed.

#### CONCLUSIONS

From this small, though varied, series of cases, we are able to make a composite chart in which

the graphs of the different cases conform very closely to each other, the organisms, in strain and virulence, even in cases of the same class, so that we are able to draw but one conclusion as to the action of the vaccines on the invading organism.

The factors are all the same, except the active etiology; and surely the results have been the same. In going back to the theory of mode of infection, we can not deny that when the body is in arms properly, no advance can be made by pathogenic organisms, which are always present. Our aim in the use of vaccines is to replace the body upon the pedestal from which it has fallen, and leave it to right itself to the state of equilibrium held in normal growth and repair. We have tried to show that vaccines are specific in the cases that come to the office every day, but our purpose, in the main, was to demonstrate that the technic could be followed out in the office of the general practitioner.

Let us not be too skeptical of the so-called new things until we have given them a fair trial, nor should we be too sure that the pendulum is swinging far beyond the bonds of rationality and prudence. Let us gain proofs positive through personal clinical experience lest the skeletons of the bubbles of medical history keep us from the knowledge and the use of a true specific.

# THE JOURNAL-LANCET

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W. A. JONES, M.D., EDITOR

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## DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

Minnesota was one of the few states that were unrepresented at the last meeting of the American Medical Association at San Francisco. Although the Minnesota House of Delegates had elected two Delegates and two Alternates, none of the four men was present; consequently, Minnesota was without any representation or voice in the House of Delegates.

Minnesota sent about twenty-six men to the meeting, and Dr. Thomas McDavitt, Secretary of the State Association, acted in his capacity as Trustee, but was not permitted to act as a Delegate.

This state of affairs has gone on for some time in Minnesota, and, as it is only occasionally that we have representation, it seems proper to call the attention of the Minnesota House of Delegates to the urgent necessity of selecting representatives with more care and of urging the Delegates to be present at the annual meetings. If this is found difficult or impossible, there should be some means of selecting a representative through the Council, or, by appointment, through the President of the State Association. Perhaps this may not be acceptable to the House

of Delegates of the National Association, but it is apparent that some way must be devised whereby Minnesota can be represented at each meeting.

In the larger county societies, when the Delegates to the State Association are elected, it is usually a haphazard sort of choice, but in the three largest counties, the Delegates are chosen with rather more care,—that is, a number of men are nominated, and out of the numbers nominated as Delegate and Alternate, the requisite number is obtained. In the smaller societies this method is not carried out as well, for various reasons; but there should be no question as to the selection of a Delegate to the American Medical Association through the House of Delegates of the State Association. THE JOURNAL-LANCET, for the benefit of the State of Minnesota and the large number of physicians that belong to the organization, urges a more careful selection of its Delegates; and the electors should discuss the probability or the possibility that the Delegate or Alternate who is chosen will attend the meeting.

This idea of conferring an honor upon a man, or a set of men, simply for the sake of the honor, is not good business, and it is detrimental to the interests of the State Association.

We think it can be safely said that there are Minnesota men who regularly attend the Association, and these men can be secured for delegate service. To be sure, the time which the House of Delegates takes up at the Association meetings, is considerable; but this should not debar the man who is selected from attending. It rather should encourage him to take part in the scientific and technical business side of the great gathering of representatives from all over the United States.

Doctors are accused of indifference, and are prone to slight their duties, as had been proven, time and again, in the work of the State Board, and unless Minnesota sends a Delegate to the next meeting there may be some sharp criticism from the National Association.

## THE ETHICAL SIDE OF THE STATE BOARD OF HEALTH

The Minnesota State Board of Health has been made the foot-ball of legislative politicians and of "soreheads" in the medical profession long enough, and the time has come when the profession of Minnesota should take an interest in the ethical side of the State Board and its work.

There have been many criticisms directed to-



ward the State Board of Health, and the idea generally prevails that Dr. Bracken is the man who is most criticised. As a matter of common knowledge, if one stops for a moment to consider it, the State Board of Health is a responsible Board, and is responsible to the State for the acts of its members and of all the employees of the Board. Notwithstanding the criticisms which have been directed toward the Board and toward the Executive Officer, the State Board of Health and its employees are constantly working for the good of the State of Minnesota. These critics naturally exercise a good deal of influence over the legislative body, and it is almost impossible to make such critics, and the indifferent members of the Legislature, understand that the Board of Health is acting for the State of Minnesota, and not for any personal or private enterprise. It may seem to make no difference how much politicians unjustly criticise Dr. Bracken, his methods, or his personality, but the reaction on the State is very great.

Dr. Bracken evidently has his enemies, but no more than other officers who undertake conscientiously to perform the functions of a state official. Moreover, there is no office in the State, out of its many, that is so hard to fill and so difficult to keep free from condemnation, as the executive office of the State Board of Health. The man who is a jelly-fish in his makeup, is an impossible officer; the man who is firm and hard, and yet carries out his duties efficiently, is bound to make enemies, for the reason that the people at large and the doctors do not fully realize what the duties of the executive officer are. They look upon him as a tyrant, dominating and tactless; and they do not consider, while making such criticisms, that, in order to carry out the laws enacted by the Legislature, and the regulations made and adopted by the Board, it requires a firm and persistent personality to accomplish the purpose of the Legislature and the Board.

During the session of the last Legislature, the Board suffered from criticism directed largely toward its Executive Officer, and the criticism emanated from men who were uninformed and personally opposed to him. This was the dominant note when appropriations were considered. Anything to dispossess Dr. Bracken, to impose additional hardships upon him, and, if possible, to oust him from his present position, seemed to please the politicians. The result was disastrous: the appropriations were slashed unmercifully, even though they had been favorably passed upon

by the House committee; and when they reached the Senate committee they were further cut. The result made it necessary to close the laboratories for two months and a half. The further result was that several members of the working staff were dropped, because of insufficient funds. This condition has been deplorable, and the people of Minnesota have suffered, and will continue to suffer, for the reduction in appropriations. It has affected the members of the Board, it has made discouraging the work of the remaining employees, and it has almost reduced the rank of Minnesota as a state in health matters.

Dr. Chapin, who has made a survey of the United States, has classed Minnesota as fourth in point of efficiency in health work. The three states that have taken rank above Minnesota are New York, Massachusetts, and Pennsylvania. The small appropriation of the Legislature reduced Minnesota to the twenty-second place in point of funds. The legislators do not seem to have taken this into consideration. They have tried to compare the work of the State Board of Health of Minnesota with that of other states where the appropriations are much less, and they have forgotten that the efficiency of Minnesota has been infinitely greater than the majority of states in the Union.

Recently, one or two country papers have been inspired to criticise Dr. Bracken, and to criticise the work of the Board of Health, particularly its division of Vital Statistics. That our readers may know the truth, we call their attention to the paper of Dr. Bracken and the letter of Mr. Pierson printed elsewhere in this issue. Dr. Bracken explains the necessity of vital statistics, and gives our readers an idea of one of the departments which is considered most essential in the maintaining of the high standard of health boards. It is rather peculiar that, notwithstanding the fact that there are many attorneys in the Legislature, they failed to grasp the meaning of vital statistics and the relation of such statistics to their own profession. If the State Board of Health keeps, as it does, a complete record of births and deaths, which is always available and may be introduced as evidence in court, one would think that the lawyer member, at least, would vote for vital statistics. It is no more than fair to say that the House committee and the Senate committee this year concurred in an increase in funds for vital statistics; but when the bill came to its final reading these items were cut to such a degree as to embarrass the Board very seriously.

One other point, too, is, that Dr. Bracken is not a member of the Board. He was in former years, but owing to pernicious political influence against him he was not re-appointed a member of the Board. This has often been an embarrassing situation when it came to a meeting of the executive committee of the Board. It is not always possible to get a quorum, but when Dr. Bracken was a member of the Board a quorum was more easily obtained. Since 1901 Dr. Bracken has been employed as the Executive Officer of the State Board of Health, and he retains his office at their pleasure.

Since the last meeting of the Legislature, Dr. Bracken has felt impelled to offer his resignation, not for political reasons,—for Dr. Bracken is a bigger man than that,—but for the reason that if he is standing in the way of the health progress of Minnesota, or if his personality is objectionable to influential members of the Legislature, he is willing to step down and out.

At the last meeting of the Board in July, this offer was renewed, and in executive session, without Dr. Bracken being present, his position was very earnestly discussed, and the conclusion of the Board was that his resignation should not be considered; that he is recognized as a man of efficiency, a man with a national reputation, and is familiar with the work to such a degree that if he should be removed from office, it would be very difficult to find a man to fill his place.

The writer knows that there will be much dissension from this opinion, but it is no small matter to fill a position of this kind; and the Board would have to go over the country pretty carefully to get a man who has the knowledge, the ability, and the force to take the place of Dr. Bracken. This is not to say that he may not resign in time; but it means that for the present the Board expresses its utmost confidence in Dr. Bracken's work. This matter must necessarily be left to the Board to determine as they are in touch with the situation, in touch with the various divisions, and have a working knowledge of what is going on in the State Board of Health,—in the office, the laboratories, and in the field. If the newspapers understood better the working of the Board, and if they would send representatives to investigate the work of the office and the method of carrying on its various and elaborate system, there would be no such criticism as was printed in the *Northfield News* and in one or two other papers.

Public health is the biggest thing in the world,

and the departments of public health will ultimately be greater than any other department in medicine. It promises to prevent disease, and to make better men, women, and children; but it cannot be carried out unless the medical profession and the lay people are behind it. It is a matter of general education, and not of personalities. It is a matter in which everyone should take a special interest; and this editorial is written as an appeal to the medical profession to use its influence to educate, not only the lay people, but particularly our representatives in the Legislature. This appeal is more than that, it is a personal appeal from the President of the State Board of Health.

W. A. JONES.

### A STATE JOURNAL IN STRAITS

The *Ohio State Medical Journal*, the official organ of a State Association with over four thousand members, announces, in its July issue, that an additional assessment of one dollar per member has been made for the publication of the journal, and, besides, that, if the assessment is not promptly paid by every member, the paper will have to cease publication in August for the remainder of the year.

Of course, the Ohio Association will not permit so excellent a journal as its official organ to cease publication; but it will awaken to the fact that a journal worthy of the profession of that great State cannot be published at one dollar a year.

## BOOK NOTICES

THE PRACTICAL MEDICINE SERIES.—Pediatrics. Chicago: The Year Book Publishers.

The volume of current pediatric literature has become so great that a review of the material is indispensable. Such a review is ably edited by Dr. I. A. Abt, the well-known authority on diseases of children, in the Year Book for 1914.

The work is well arranged, gives concise summaries, with notations of sources of the articles, and provides an excellent index, as well as résumé.

In the same relation to orthopedics stands the section edited by John Ridlon.

—RODDA.

PYELOGRAPHY (Pyelo-Ureterography). A STUDY OF THE NORMAL AND PATHOLOGIC ANATOMY OF THE RENAL PELVIS AND URETER. By William F. Braasch, M. D., Mayo Clinic, Rochester, Minn. Octavo volume of 323 pages, containing 296 pyelograms. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$5 net.

On reading this book one is convinced Dr. Braasch is a master of the subject. The text is clear and comprehensive, and it is illustrated with numerous x-ray plates of normal and abnormal conditions of the kidney, its pelvis and ureter.

The chapter on technic is the most important in the book. It describes minutely the steps in the procedure, and calls attention to the dangers of pyelography if carelessly done.

The chapter on the normal pelvis has a large number of plates showing the difference in contour of the normal pelvis. The following chapter takes up the abnormal positions in which the kidney may be found. Then follow chapters on mechanical dilatation, inflammatory dilatation, renal stone, ureteral stone, renal tumor, and congenital anomaly.

—WETHALL.

INTERNATIONAL CLINICS, Vol. II, Twenty-fifth series, 1915. Philadelphia and London: J. B. Lippincott Company. Price, \$2.

This number is an unusually interesting one of an always valuable addition to the busy practitioner's reading.

Besides excellent reports on some of the newer phases of diagnosis and treatment, such as the one on "Emetine Therapy," by A. S. Burdick, M. D., and another on "Animal Extracts," by Graham Chambers, M. D., we note among several of prime importance the very practical summary of "Chronic Constipation and Its Rational Treatment," by M. E. Smukler, M. D., and the exceptionally good treatment of "Some Painful Conditions of the Foot," by M. B. Miller, M. D.

—TALBOT.

MORRIS' HUMAN ANATOMY. Fifth Edition. Revised and largely rewritten, 1,182 illustrations, 358 printed in colors. Edited by C. M. Jackson, M. S., M. D. P. Blakiston's Son & Co., 1914. Price, \$6.

It is now eight years since the appearance of the fourth edition of this well-known anatomy. The present edition reflects well the changes and advances which have been made in anatomic science since the publication of the preceding one. Perhaps the most noticeable modification is the full and complete adoption of the Basle Nomina Anatomica commonly known as the B. N. A. With the use of this simple and accurate system of nomenclature in two of the most important texts of anatomy in English, as well as in one of the better histologies, we may regard it as a fixed part of anatomic teaching in English-speaking countries.

A second feature, and one which Morris is the first of anatomical texts in English to adopt systematically, is the addition of short selected bibliographies at the end of each chapter. In some cases these are hardly so specific as to aid the beginning student to any great extent. To state, as is done at the end of the chapter on "Articulations," that "references to the most recent literature may be found in Schwalbe's Jahresbericht, the Index Medicus, and the various anatomical journals," is little more than to indicate that such literature exists. However, this criticism holds good for a few chapters only.

Among the sections which have been much changed are those on the vascular system, the nervous system, and the digestive tract.

The section on the vascular system, revised by Prof. Senior, gives a particularly good account of the heart, including its position and development. The section

on the nervous system, again written by Prof. Hardesty, has also been considerably modified, particularly in the nomenclature of the cranial nerves. Whether the subdivisions of the fifth, seventh, and eighth nerves, as presented by Prof. Hardesty, will be found useful in the teaching of anatomy seems to the reviewer as at least doubtful. At best it is a compromise between the purely anatomic and purely morphologic conceptions of these structures, and, like most compromises in nomenclature, leads to confusion. It is a question whether the purely anatomic presentation of the cranial nerves is not the better for elementary students, who have no knowledge of neurology. This chapter contains an account of the nervus terminalis, recently described in man.

The section on the digestive tract, revised by the editor, has been much improved by the addition of x-ray figures and topographic reconstructions. The correlation between the gross and the microscopic structure of this system is particularly good.

Above one hundred and fifty new illustrations have been added to the book to its great improvement. Among these Senior's figures of the heart, and the large number of new cuts of the viscera, deserve particular mention. However, the section on the urogenital systems offers a field for improvement in this respect. It is unfortunate that the almost traditional figure of the development of the reproductive organs (Fig. 1039) was retained when so much better ones are available.

The outstanding features of the former editions of this book are retained in the present one. Walsham's remarkably clear schemata of the distribution of the larger arterial trunks, and the good descriptions of bones at birth, may be mentioned among these.

The index has been greatly improved, particularly by the use of heavy-faced type for the page number of the most important reference to any subject.

Finally, with its rewriting, the book has increased a little over a hundred pages, but retains its feature of clear, brief, and systematic presentations, which has always made it desirable.

—SCAMMON.

## REPORTS OF SOCIETIES

### WABASHA COUNTY SOCIETY

The forty-seventh annual meeting of the Society was held at Mazeppa on July 15.

There were nineteen present, including physicians and dentists, members and guests of the Society.

The Society was entertained by the president, Dr. W. B. Heagerty, of Mazeppa. An excellent dinner was served at the Hotel Mazeppa.

At the business session in the forenoon, the following officers were elected for the ensuing year:

President, Dr. D. S. Fleischhauer, Wabasha; vice-president, Dr. J. A. Slocumb, Plainview; secretary-treasurer, Dr. W. F. Wilson, Lake City; delegate, Dr. W. B. Heagerty, Mazeppa;



alternate, Dr. D. P. Dempsey, Kellogg; censor for three years, Dr. W. J. Cochrane, Lake City; censor for two years, Dr. W. T. Adams, Elgin.

Dr. W. F. Bleifuss, Elgin, was elected to membership.

Upon invitation of the Plainview physicians, it was voted to hold the next meeting at that place in July, 1916.

After dinner the following program of papers was presented:

President's address, "Health Economics," Dr. W. B. Heagerty, Mazeppa; "Anesthetics in Obstetric Practice; Deductions from Forty Years' Experience," Dr. W. T. Adams, Elgin; "Pyorrhea Alveolaris from a Dental Standpoint," Geo. S. Todd, D. M. D., Lake City; "Some Medical Aspects of Pyorrhea Alveolaris, with Report of Cases," Dr. W. F. Wilson, Lake City; "Some Observations on Gasoline Poisoning, with Report of a Case," Dr. W. F. Bleifuss, Elgin.

All the papers elicited general discussion.

After a vote of thanks tendered Dr. Haegerty for his splendid entertainment of the Society and guests, the meeting adjourned.

W. F. WILSON, M. D., Secretary.

## NEWS ITEMS

A physician is wanted at Delhi, Minn.

Dr. J. C. Michael, of Jordan, has moved to St. Paul.

Dr. W. J. Stock, of Adrian, has moved to Waconia.

Dr. Arthur Bratrud, of Warren, has located in Grand Forks, N. D.

Dr. P. A. Boyum, of Devils Lake, N. D., has located in Keene, N. D.

Dr. Wesley Bishop has returned to Minneapolis after spending three years in Canada.

Dr. J. G. Kennedy has returned to Plankinton, S. D., having spent a year studying in the East.

Dr. O. J. Hagen, of Moorhead, is spending several weeks in New York City doing research work.

Dr. E. C. Schoonmaker, formerly of Minneapolis, died on the first of July at his home in Texas.

Dr. Thos. Peterson has disposed of his interest in the Gaylord Hospital to Dr. Wm. Black, of Tyndall, S. D.

Dr. M. J. Fiksdal, of Webster, S. D., was married last month to Miss Anna Ludwig, of Cottonwood, Minn.

Dr. James A. Wood, of Boston, Mass., has become associated with Drs. S. M. and J. A. Hohf, of Yankton, S. D.

Dr. H. J. Robb, who has been doing postgraduate work in Chicago, is to assist Dr. T. T. Skogen, of Flandreau, S. D.

Dr. J. L. Rothrock, of St. Paul, has decided to withdraw his resignation from the Medical School of the State University.

Dr. H. J. Day, a recent graduate of the University of Minnesota, has become associated with Dr. A. L. Peterman, of Parker, S. D.

The county health-survey which was to be undertaken in Minnesota by the Federal government, has been postponed for another year.

Dr. T. F. Hammermeister, recently graduated from the State University, has associated himself with Dr. O. C. Strickler, of New Ulm.

Work on the tuberculosis sanatorium building near Bemidji will begin by the middle of the month. The building will cost over forty thousand dollars.

Dr. Fred J. Patton has been appointed county health physician at Duluth to succeed Dr. I. J. Murphy, now secretary of the Minnesota Public Health Association.

Dr. L. P. Vanduzer, of New York City, is in South Dakota for a couple of months doing organization work for the A. M. A. and the State Medical Association.

The Minnesota Pasteur Institute treated twelve cases of rabies in the quarter ending June 30, as against six cases in the previous quarter. There was one death.

Mr. K. A. Rygh, for the past two years Superintendent of Schools at Churchs Ferry, N. D.; has become manager of the Good Samaritan Hospital at Rugby, N. D.

The Minneapolis laboratory of the State Board of Health opens today with Dr. H. A. Whittaker in charge. The laboratory has been closed since May 1 because of a lack of funds.

St. John's Hospital, of Fargo, N. D., has let the contract for a \$50,000 nurses' home; and St. Luke's Hospital, of the same place, has plans for an addition which will double its capacity.

Four tuberculosis hospitals are in operation in Minnesota and eleven more are under construction, giving, in all, hospitals to thirty-one coun-

ties with beds to the number of seven hundred and fifty.

Dr. Mabel S. Ulrich, of Minneapolis, has been appointed by Governor Hammond as a Minnesota delegate to the National Conference on Race Betterment, to be held in San Francisco on August 4th.

Dr. Harold Stone, an interne at the Minneapolis City Hospital, has left for France to enter the field as assistant surgeon of the corps working there under the direction of the American Surgical Relief Society.

The secretary of the State Board of Examiners in Optometry informs THE JOURNAL-LANCET that under the recently passed optometry law physicians and surgeons will not be subject to examination by that Board.

The emergency hospital at the Minnesota State Fair grounds is to be run entirely by the medical corps, First Field Artillery, Minnesota National Guard. Dr. W. C. Rutherford, of St. Paul, major surgeon, will command the corps.

The Southwestern Minnesota Tuberculosis-Sanatorium Association held its annual meeting at Luverne last month. Dr. C. L. Sherman, of Luverne, was chosen president. Work on a building to accommodate fifty patients will soon begin.

At the July meeting of the Minnesota State Board of Health, Dr. H. M. Bracken, the secretary and executive officers, again told the Board he was ready to resign if the Board thought public health interests demand his resignation. The Board unanimously refused to consider his resignation. We comment editorially on the subject.

Reliable information comes to us that some physicians in South Dakota are violating the Harrison law. No doubt a few physicians in every state are tempted to evade the stringent provisions of this law. It is exceedingly dangerous to do so, for the Federal agents are alert, and courts are given no option in the penalty, which is imprisonment and a heavy fine.

Dr. Bracken, Secretary of the Minnesota State Board of Health, talks of resigning. Probably no man holding a public office in the State has had more unnecessary and uncalled for abuse heaped upon his head than has Dr. Bracken. And when matters have been thoroughly sifted and the public pulse has become normal, he has generally been found in the right.—*Blue Earth Post*.

The Montana State Medical Association held its annual meeting at Bozeman on July 15. The following officers were elected for the coming year: President, Dr. Rudolph Horsky, Helena; vice-president, Dr. H. H. Judd, Bozeman; secretary-treasurer, Dr. E. G. Balsam, Billings; delegate to the A. M. A., Dr. J. H. Irwin, Great Falls. The next annual meeting will be held in Miles City.

## PHYSICIANS LICENSED AT THE JUNE (1915) EXAMINATION TO PRACTICE IN MINNESOTA

BY EXAMINATION

Borreson, Baldwin	U. of Minn., 1915
Bumpus, Hermon C. (Jr.)	Harvard, 1915
Camp, Walter E.	U. of Minn., 1916
Carman, Paul I.	U. of Minn., 1915
Clark, Harry B.	U. of Minn., 1916
Cruzen, Roy E.	U. of Minn., 1916
Davis, Lloyd T.	U. of Minn., 1915
Edgar, James D.	U. of Minn., 1915
Ginsberg, William	U. of Minn., 1915
Greaves, John P.	U. of Minn., 1916
Greene, Everett E.	U. of Minn., 1915
Halloran, Walter H.	U. of Minn., 1915
Hamel, Arnold L.	U. of Minn., 1916
Hammermeister, Theodore F.	U. of Minn., 1915
Hansen, Erling W.	U. of Minn., 1915
Hansen, Olga S.	U. of Minn., 1916
Holm, George A.	U. of Minn., 1915
Jarvis, Bruce W.	U. of Minn., 1916
Johnson, Peter O. C.	Rush, 1915
Mach, Frank B.	U. of Minn., 1915
Magney, Fredolph H.	U. of Minn., 1916
Mark, Arthur E.	U. of Minn., 1915
McKeon, Joseph O.	U. of Minn., 1915
Mitchell, Louis A.	U. of Minn., 1916
Noice, Russell R.	U. of Minn., 1915
Odland, Henry	U. of Minn., 1915
Oftedal, Trygve	U. of Minn., 1916
O'Neill, John W.	U. of Minn., 1916
Opheim, Odd V.	Rush, 1914
O'Hare, Edward S.	U. of Minn., 1914
Payne, Roy A.	U. of Minn., 1916
Roskilly, Gerald C. P.	Rush, 1915
Rund, Henry O.	U. of Minn., 1916
Schroeder, John H.	U. of Minn., 1915
Sherman, Hubert T.	Hamline, 1904
Stone, Harold W.	U. of Minn., 1915
Stratte, Joseph J.	U. of Minn., 1915
Sutton, George E.	U. of Minn., 1914
Waugh, Richey L.	U. of Minn., 1916

Williams, Clayton K. . . . . U. of Minn., 1915  
 Winter, Otto L. . . . . U. of Minn., 1916  
 Wittich, Frederick W. . . . . Johns Hopkins, 1913

## BY RECIPROCITY

Binger, Henry E. . . . . U. of Minn., 1910  
 DeVall, Frederick C. . . . . Sioux City Med. Col., 1905  
 Friesen, Henry J. . . . . Northwestern, 1910  
 Pfisterer, Frank W. . . . . Marquette, 1913  
 Walker, James C., Jr. . . . . Med. Col. of Va., 1914  
 Whare, George B. . . . . Rush, 1903

## FOR SALE

A Wagner mica plate static machine with accessories, for sale. Price very reasonable. Write Dr. Russell, Stewartville, Minn.

## STATIC MACHINE FOR SALE

Twenty-five dollars takes an 8-plate Brunzell static machine in fine condition f. o. b., Willmar, Minn. Address 240, care of this office.

## PRACTICE FOR SALE

In good town 40 miles from Twin Cities; on a fine lake; with nice home on lake; also auto and office fixtures. Address 239, care of this office.

## STATIC MACHINE FOR SALE

A 16-plate static machine, doing first-class work, is offered for sale right now. Price, low. Address inquiries to Lock Drawer 188, Stewartville, Minn.

## WANTED

By an experienced physician, locum tenens work, or will purchase unopposed or lightly opposed practice. Address 235, care of this office.

## POSITION OPEN

In first-class town in Northern Minnesota for both a physician and a druggist. Scandinavian preferred. Address 230, care of this office.

## OFFICE WANTED

Physician wishes to rent offices with other physicians or dentist in a down-town office building in Minneapolis. Address 234, care of this office.

## BEST CITY LOCATION

For a young doctor. Modern corner building; steam heat; electric lights; janitor service; two dentists in building; reasonable rent. Come and see for yourself. A. E. Simms, 331 14th Avenue S. E., Minneapolis, Minn.

## LOCUM TENENS WANTED

Experienced physician and surgeon wishes locum-tenens in, or very near, the Twin Cities for six months or a year. Have money to purchase if mutually agreeable. Very ethical. Speak German and Scandinavian languages. Would like assistantship with busy surgeon. Address 232, care of this office.

## ASSISTANT WANTED

Wish an assistant at once in a general and hospital practice in Minnesota. Good proposition for a competent and energetic man. German and married man preferred. This is an exceptional proposition to one capable in surgical work. Address 238, care of this office.

## PRACTICE WANTED

A general medical practice in a town of from 1,500 up, paying not less than \$3,500 cash, with a chance to do eye, ear, nose, and throat work and general surgery. Would like to get into Alexandria, Glenwood, Detroit Lake, Redwood Falls, or some other town of equal importance. Address 236, care of this office.

## PRACTICE WANTED

Doctor thirty-five years old, married, a protestant, Mason, and Elk; good mixer, wishes a place in Minnesota or adjoining state. Has North Dakota, Missouri, and Idaho licenses. Would accept a locum tenens, assistantship, partnership, or any other good chance to get back and get busy. Address 237, care of this office.

## PRACTICE FOR SALE

In Minnesota, lucrative practice in village of 300 within short distance of Twin Cities; no other doctor, and two neighboring towns have none. Rich agricultural and dairy section. Population, mixed; good roads; collections, fine; nearest competition, 10 to 16 miles. Modern drug store building, including residence and offices. Cheap, \$3,500, or may be rented on long lease at \$30 per month. Oculist's hours cuts this to \$25. Drugs, medicines, fixtures, sundries, safe, typewriter, etc. Bargain, \$1,500. Doctor (not necessary to be pharmacist) gets rich in few years. Address 241, care of this office.





# The Battle Creek Method of Treating Cases of Drug Addiction

**Alcohol, Opium, Cocaine, Tobacco and Other Drug Habits**

The Battle Creek Sanitarium is not an inebriate asylum. Cases requiring physical restraint or likely to disturb other patients are not received. For a large class of intelligent persons who have through suffering become entangled in the toils of a drug habit and who are ready to co-operate with a rational effort to deliver them from the drug and from its effects the Battle Creek Sanitarium Method offers a rational, safe and remarkably comfortable means of relief and without publicity.

This is not a drug method. Drug methods often leave the patient's nervous system shattered and his condition so wretched that he is very liable soon to drift back into the old habit.

There are no tricks of hypnotism or "suggestion" in the Battle Creek Method. The rational and physiologic means employed not only remove the craving for the drug but deliver the patient from the pain or neurasthenic miseries to relieve which the drug was first used, and if faithfully employed finally reinstate the patient by removing the morbid effects resulting from the use of the drug.

A fuller account of the Battle Creek Sanitarium Method of treating drug addiction in its various forms will be sent on receipt of the attached coupon.

**The Battle Creek Sanitarium, Battle Creek, Mich.**

**Box 350**

**The  
SANITARIUM,  
Battle Creek,  
Michigan.**

Please send to the undersigned full information concerning the Battle Creek Method of treating cases of drug addiction.

Dr.....

Street .....

City .....

State .....

## PUBLISHER'S DEPARTMENT

### X-RAY APPARATUS

The Scheidel-Western x-ray apparatus, like the Ford auto, has become an indispensable outfit even in the smallest practice. This is true, because the work has to be done, and the Scheidel-Western apparatus does it.

No office is too big, and none too little, measured by the number of patients treated, not to need such apparatus.

### SHERMAN'S BACTERINS IN HAY-FEVER

The hay-fever war is on, and its victims are legion and in dead earnest. They are indeed in the trenches against this insidious enemy.

Dr. G. H. Sherman, of Detroit, Mich., says his bacterins are the best ammunition obtainable against this foe. If it does not kill the enemy, it will render his attacks harmless during his fierce war between now and frost.

### THE WINKLEY ARTIFICIAL LIMB CO.

The scientific and mechanical work of some firms is of so high an order that competitors never equal it. This, we believe, is true of the above Company, which has long held the proud distinction of being the largest manufacturer of artificial limbs in the world.

The physician or surgeon who sends a patient to this Company for an artificial limb, does a real service to the unfortunate person, and will always have his gratitude.

### THE MINNESOTA SANITARIUM

The Minnesota Sanitarium, of Minneapolis, has been obliged by largely increasing patronage to seek new quarters, which it obtained at 1926 Fifth Ave. South.

Its beautiful and commodious home is testimony of the institution's popularity.

It receives only mild mental and nervous cases, and drug addicts.

Dr. Leo M. Crafts is the medical director, and Dr. Julius Johnson is his associate.

### DR. BLIVEN'S MATERNITY HOME

During its entire history, THE JOURNAL-LANCET has admitted to its columns the advertisement of only one maternity home; and that one, as named above, was admitted years ago because Dr. Ada K. Bliven, its manager, came with recommendations of such a character that we felt we were doing our readers a service in admitting her advertisement.

In many years that her card has appeared in our columns we have heard nothing but praise of her work.

### THE CHICAGO LABORATORY

The Chicago Laboratory has been successful in an unusual degree because its three chief directors, Drs. Webster, Dagg, and Croy, are thoroughly capable men in their respective departments. They have long had the confidence of the Chicago profession, and through it, to no small extent, have gained the confidence, and the patronage, of the profession in the West.

They will be pleased to correspond with any physician, and to furnish information upon the lines on which they work.

### SURGEONS' AND DENTISTS' INSTRUMENTS, MADE AND REPAIRED

We call the special attention of our readers to the announcement of Mr. B. Weiser, of Minneapolis, who succeeds the Llewellyn-Campbell Co., in the business of making and repairing instruments for surgeons and dentists.

He is the sole maker of that excellent instrument, the "L-C" tongue-depressor, and he is the only man in the Twin Cities who sharpens Wall's files.

He invites correspondence. Address B. Weiser, 905 Palace Bldg., Minneapolis.

### THE BATTLE CREEK SANITARIUM

It is becoming recognized among the members of the medical profession that semi-invalids are usually given too much time for introspection, and that, if useful, interesting occupation is provided, their symptoms really become less acute.

In line with this healthful theory, the Battle Creek Sanitarium has instituted an "Occupational School," in which many of the patients have already interested themselves to their health-betterment.

Many useful branches are taught in this school, including weaving, basketry, stenciling, clay-modeling, and other things.

The efficacy of the project, especially in quieting nervous patients, has been clearly demonstrated.

### HOPE SANITARIUM

The Hope Sanitarium is now under the medical management of Dr. Rudolph H. Wald, a member of the Minnesota State Medical Association, and one of the oldest physicians in the State. Dr. Wald guarantees the profession that the strictest ethical methods are followed, and that any patient sent to him will be treated just as advised by such patient's physician.

The Hope Sanitarium is located at Hastings, an attractive river town, twenty miles below St. Paul. It offers its patients, moderate prices, home-like surroundings, and the usual treatment of all such places of rest and recuperation. All the devices of massage, electricity, baths, etc., are used; and with pleasant surroundings. These aids, with a change of surroundings, cure many people who persistently refuse to get well at home.

### JUST WHAT THE DOCTOR NEEDS

Under the recently-enacted Harrison Narcotic Act every physician will be obliged to keep a record of nearly all the narcotic drugs he dispenses in his office and elsewhere. For this purpose he will need some convenient form of book. The only way to simplify and clarify the task and at the same time to satisfy the inspector, is to have a suitable record book.

The Abbott Alkaloidal Company, Chicago, has prepared an excellent little book of the kind—precisely what you need. It reduces the whole vexatious affair to a simple question of filling in a few headings in a memorandum book; all the rest of the work is done by the book itself. It contains a synopsis of the law, a list of the affected drugs, a place for making inventory (also required by law), clear instructions for using the book, and some hundred pages of ruled record space, all neatly bound in cloth, of a size to go easily into your coat pocket, at the nominal price of 25c, or 75c in beautiful flexible leather binding. We positively do not see how any man in practice can get along without it.

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## THE INDIAN MEDICAL SERVICE\*

By P. F. RICE, M. D.

Physician, Standing Rock Indian Reservation

CANNON BALL, NORTH DAKOTA

The average medical journal or medical organization has never been well informed concerning the different branches of the Federal Medical Service. Much has been said about the status of the Army Medical Service and the Public Health Service, but few have heard, or understand, about the experiences of physicians in the Indian Service or other branches of the Federal Bureau.

The following explanations are taken from the "Manual of Examinations of the U. S. Civil Service Commission." This is virtually the promise of the Government to prospective employees in the Indian Service:

The conditions of life at these schools differ from ordinary school or home life in that most of the schools are located at points remote from large cities. Employees are desired who are interested in their work and who are willing to devote their whole time to their duties. When emergencies arise they are expected to render such service as may be required in addition to the duties usually attached to their positions.

The usual entrance salaries are as follows: Physicians, \$900 to \$1,000 per year, etc. The higher salaried positions are usually filled by promotion.

Quarters, with light and fuel, are usually provided for employees.

Leave of absence with pay may be granted in the discretion of the Commissioner not to exceed thirty days in any calendar year.

The duties of employees are of such a character as to require perfect health.

Following up these quotations, the conditions of life are certainly much different from ordi-

ary school life in being remote from large cities and also in living with what is, in reality, an alien people.

The physicians are expected to answer calls from employees and their families, and from Indians and their families when living on the reservation. To enable them to do this, horses and buggies are usually furnished for transportation.

Speaking locally and within my own knowledge, the Standing Rock Reservation has an Indian enrollment of about 3,400 people, and comprises twenty-nine townships in North Dakota, and thirty-seven townships in South Dakota. To serve this reservation, there are employed in the health branch four people,—one nurse and three physicians,—whose total salaries amount to \$3,840. The three doctors thus have each twenty-two townships with about 1,100 people. These physicians are called hither and yon all over the Reservation with little regard for real necessity. The Indian only understands that these white men are employed at what is, to his mind, a large salary, and it becomes his duty to see that the salary is earned. Unfortunately, the Indian is taught that the progress of the white employees is due only to the use or misuse of the Indian's own tribal money; that all money expended by the Agency is Indian money. This idea is further fostered by over-zealous and misguided friends of the Indian, also by the secrecy about Indian funds, and the unnecessary complexity in the Government accounts. (A more simplified and public accounting is much to be desired.) As a consequence some travel is very unproductive of

\*Read at the 34th annual meeting of the North Dakota State Medical Association at Bismarck, N. D., May 12 and 13, 1915.



results. Trips of thirty and forty miles distance have landed me at locked houses, or the patient may be found chopping wood or working at some equally strenuous labor. What can you do about it? Nothing. The Indian has no responsibility in the case. The educated Indians are very much inclined towards criticism, with the result that strong derogatory evidence is always available, while complimentary evidence is difficult to find.

The clause about emergencies arising and demanding extra service is one that gets the physician going and coming, our work being of that nature at all times. Calls demanding forty miles, sixty miles and even one hundred miles travel are of frequent occurrence. Quite naturally a trip of that nature, if answered with horses, is followed by neglect of office patients, or, if refused, means neglect in another direction. However, horses and buggies were sufficient in years gone by, and are still deemed sufficient by those in

Have a nice, comfortable, cheerful waiting-room; also a good, light, airy, and accessible consulting-room of moderate dimensions. Let their essential features show that their occupant is possessed of good breeding and cultivated taste, as well as learning and skill; the offices of an earnest working, scientific physician, who has a library, takes the journals, and makes use of instruments of precision, and the various methods that science has devised for doing different kinds of medical and surgical work, and regards his office as the twin sister to the sickroom.

Be at your post punctually as possible, have your office well heated in winter and kept cool in the summer; your door bell answered promptly by the person in charge.

No one of the physicians on Standing Rock Reservation has office rooms even approaching the ideals mentioned, and, I believe, generally accepted; no one of the three has an office assistant; no one of the three has a library, except it be his own personal property; no one of them has journals furnished him; no one of them has,



Fort Yates, 1906.



Fort Yates, 1914.

authority at Washington. As the years go by the Indian asks more and more medical attention. In my own case, I am inclined to the opinion that my services were fully twice as much in demand the past year as compared with my first year in the service. What of the future? An official communication tells us:

"Due to recent legislation, this office is unable to purchase motor-propelled or horse-drawn vehicles." When our present equipment is no longer of service, doubtless we can walk or ride horseback. My office records show up to one hundred and fifty patients per month, and often even more, with travel records as high as seven hundred miles per month. The statement that "the duties of employes are of such a character as to require perfect physical health" thus becomes self-evident.

In the matter of office accommodations and dispensary facilities local conditions with which I am familiar, are sadly insufficient. In Cathell's "Book on the Physician Himself," he says:

for instance, a microscope and reasonable laboratory equipment; and instruments of precision, such as sphygmomanometer, are conspicuous by their absence. At one place at least drugs are stored in many different and inaccessible places, there being no provision for storing them in an orderly manner, and the office, waiting-room, consulting-room, dressing-room, and dispensary consist of one room twelve feet square.

Concerning salaries, comparative figures might be of interest. The usual entrance salaries are as follows:

Physicians, Indian Service....	\$900 to \$1,100 a year
Physicians, Panama Canal....	1,800 a year
Physicians, Philippine.....	1,600 to 1,800 a year
Veterinarians, Bureau of Animal Industry .....	1,400 a year

Here we have an interesting comparison. Veterinary inspectors looking after Indian stock, draw an entrance salary of \$1,400 a year, while the physician employed to care for the Indian himself draws only \$900 to \$1,200 a year, and no hope of increase. What the opinion of

the office may be, is uncertain, but the inference is that the stock is more valuable than the Indian.

These quotations show the unenviable position of physicians employed in the Indian Service. The Indian Office says, "Every effort is being made to improve the efficiency of the employes." The salaries quoted show the effort to attract efficient employes to the Medical Service of the Indian Office.

It is of further interest to compare average salaries in Washington and average salaries in field service.

Table No. 59, Annual Report, 1913:	
326 employes, Health Service in field.	
Total salary.....	\$242,664
Average salary.....	744

Table No. 60:	
20 employes, Health Division of Washington office,	
Total salary.....	\$ 29,400
Average salary, each.....	1,470

Here let me say, I am unable to separate or designate the particular kind of service of each employe in the lists as published; and, further, I am in possession of the refusal of the Washington office to furnish such information. I quote from a letter of the Assistant Commissioner dated Nov. 13, 1914: "The office does not consider it advisable to furnish you with this list."

Considering the wonderful wisdom of Congress in making these bounteous appropriations, no wonder the office tries to cover the gap, which should be filled by money, with the statement, "Every effort is being made to improve the efficiency." The effort is shown by the low salaries and by the lack of regular scheme of promotion.

Nowhere in practice or precept, except the single statement that the "higher salaried positions are usually filled by promotion," does the Indian Office hold out any prospects of increase of pay according to service. In the Medical Reserve Corps and in the Public Health Service provision is made for a regular and stated increase of pay according to service. We also find that in these branches provision is made for periodical instruction and practice under competent supervision. No instance of this is available in the Indian Service. A physician in the Indian Service after a few years may desire, and undoubtedly would need, some postgraduate study. How shall he satisfy this laudable purpose? Is he allowed a few months' leave with pay or ex-

pense money? Oh, no; he can spend the savings from a munificent salary, take a leave of absence without pay, or even expenses, and with no certainty of re-instatement in the Service; and, if he is reinstated, with no hope of increase of pay.

Referring to these privileges of medical employes let the inquiry proceed: "Leave of absence with pay may be granted in the discretion of the Commissioner not to exceed thirty days in any calendar year." I quote an answer for leave of absence:

"Your application for leave is received. Before any action is taken on this request the office would like to know whether you have made arrangements with any physician for medical services in your district during your absence, as required by the rules governing leaves of absence."

Here is a new factor not as advertised. To show this rule is general, I quote from another answer, "Replying to your request for thirty days' annual leave, it will be perfectly agreeable to this office, providing you and Dr. D—— can agree on the proposition that he shall look after your charges and you to return the favor the following month."

I have endeavored to show that the travel involved and the usual demands of the territory assigned one doctor will ordinarily keep him so busy that he can scarcely eat or sleep. But to gain thirty days' leave he must either do double duty or hire a substitute. Small wonder the office should want to say that every effort is being made to increase the efficiency of the service.

As a patient the Indian is, on the average, very tractable and easy to manage, provided his customs and manners are not too much invaded. That is, he is tractable while you are on the spot, but the older ones cannot be expected to persevere and follow a plan as directed, except by almost constant supervision. They seem to think that for every kind of sickness there is some wonderful remedy. They fail to grasp the idea that sickness may be induced by their own faulty habits, and that the action of any medicines is dependent on the correction of those bad habits. However, that same idea may be found among other people than Indians.

Concerning their primitive methods: I have failed to note anything more evident than fakery. Some of the old men may carry their medicine bags and sleight-of-hand tools. I hear often that some old man drew out from the sufferer's neck a piece of food that had been "swallowed wrong," the drawing out being accomplished by lip-

suction through the medium of a small pipe, and the particle of food being faked after a sufficiently impressive demonstration. I have seen no evidence of real medicine as a part of the armamentarium of a medicine man.

Again the Commissioner's Annual Report for 1913:

The health conditions among the Indians are deplorable. There are approximately 25,000 Indians suffering from tuberculosis. Available hospital facilities for all these patients will not exceed 300 beds. Of the whole number of deaths reported from various Indian reservations, 32 per cent were due to pulmonary tuberculosis, as against 11.2 per cent due to the same disease occurring in the registration area of the United States.

The housing conditions demand immediate consideration. It is estimated that there are 8,000 families without homes, who live in mud lodges, teepees or wickiups, a large number of them on dirt floors and under the most revolting unsanitary conditions. It is my purpose to enter into a vigorous campaign to improve the housing conditions.

Such are the conditions as viewed by the Honorable Commissioner of Indian Affairs. His expressed purpose to improve the housing conditions is, without doubt, highly commendable. We hear much of new hospitals equipped and sanatoria provided, and usually but little of correction at the root of the evil.

Concerning the establishment of sanatoria, these are much to be desired. But how much more to be desired is the proper instruction of would-be victims before they reach the sanatorium stage! This problem is one to which greater attention should be devoted. The girls need more instruction in general housekeeping and in cooking and in serving of meals,—what is now known as domestic science. They must learn the *how* to do and the *reason* why. The boys need instruction which will be more applicable to conditions as they will be in their future homes, instruction that will bring home to them the necessity of clean houses, cleanly and well-drained surroundings, and the providing of constant, not intermittent, supplies of food, water, shelter and warmth. Maragliano says: "The sick man has acquired tuberculosis because his resisting power is low."

Regarding the sanatorium, I quote from an editorial in the *Saturday Evening Post*, of October 25, 1913, "After the Sanatorium."

Massachusetts has been checking up the results of her battle with the great white plague. She finds, for one item, that in about seventeen months, one hundred and twenty-seven patients were discharged from the Lawrence Tuberculosis Hospital. Seventy-five of the patients subsequently died. Of seventeen no trace is found. Seven are apparently well. Of the remaining

twenty-eight all but four are living in tenements under the same unsanitary conditions that were responsible for their having tuberculosis in the first place; and only two of the twenty-eight were taking any particular pains to avoid spreading the plague. Presumably then we have a certain net gain of seven out of a one hundred and twenty-seven.

You can never cure poverty with charity, but only alleviate it a little here and there. Nor can you ever exterminate tuberculosis with free sanatoria. To do that you must get back to the unsanitary living conditions in which the plague breeds.

In the matter of caring for Indians suffering from tuberculosis or other conditions requiring hospital care, I am of the opinion that facilities for a few could profitably be established at each point where a physician is placed. Modest equipment of building and employes at each place would be but slight additional expense more than the proper office equipment, would be easily accessible for the sick, and being, each in its own locality, would avoid the delays necessarily involved in transferring patients to widely separated hospitals remote from the patients. Another feature favoring this plan is the lessening of homesickness, which is a very important factor with tuberculosis patients who are taken away from home and friends to distant points. Also, the further fact that permanent and lasting benefit from careful feeding and supervision can be best accomplished in the same climate to which the patient is accustomed. Otherwise, patients from cold, harsh climates who have been improved and restored to strength in warmer climatic conditions, will quickly lapse into their previous methods of insufficiently ventilated sleeping-rooms, because they have not been taught how to overcome climatic conditions in their own homes.

Illustrating the vacillating policies of the Indian Office, I may here mention that at Fort Yates in 1906 there was standing the old post hospital building. This building was of good construction and was turned over to the control of the Indian Office when the post was abandoned. The building was large, commodious, and well built, but was deliberately torn down and leveled about 1907. Now, in 1914, there has been erected almost on the same spot, a new hospital costing about \$25,000, with a capacity of thirty beds. One wonders how can these things be? But the fact remains it is—and whatever is, is right. In 1907 there was no use for such a building, tear it down and level the foundations; in 1914, spend \$25,000 or more to build a new one in practi-



cally the same location. I doubt not that the need was as great in 1907 as in 1914. A statement of deaths for instance due to tuberculosis will not show any great variation from 1907 to 1914.

Annual Report of the Commissioner of Indian Affairs, 1905, refers to "that dreaded disease, tuberculosis, which exists to a great extent, and from which cause a great many deaths occur."

That sounds like a plea for hospital facilities, but two years later a desirable building was—destroyed.—deliberately and intentionally. I show views of the post hospital which was destroyed, and of the new hospital which was constructed about seven years later.

Trachoma is another widespread disease of the Indian. It is estimated that there are more than 60,000 cases of this disease. Here again we find the Department recommending additional hospitals to check and control this disease. Again I venture to question the wisdom of hospitals as opposed to instruction in elementary cleanliness and prevention of this ailment.

One of the most frequent forerunners of trachoma is nasal disease, with obstruction of the lachrymal duct. I see altogether too much stress laid on exposure to infection as a cause of these two diseases. Let us rather urge that *infection* must be preceded by *lowered resistance*, else the exposure will not infect.

You have, all of you, seen healthy, husky people living under conditions of housing and ventilation and lack of cleanliness just as deplorable as any among the Indians. Why should we not find tuberculosis and trachoma among these people? Why are they not sickly and diseased? The greatest difference I can note is, that these people are hard workers and well fed. Much of the fancied lack of vitality and resistance of the Indian would disappear before these two habits, if we could once establish them as habits.

Rheumatic disease occurs rather frequently. Some sporadic cases of meningitis are seen. Cancer, which has been said never to occur among Indians, has been the cause of death in at least two cases. The venereal diseases are uncommon. Syphilis, which is usually considered prevalent, is a disease I have been wholly unable to find among the Indians on Standing Rock Reservation. A few cases of gonorrheal infection occur at intervals, nearly always traceable to outside sources.

Sporotrichosis is a disease I have noticed in some five or six patients. My first introduction to this trouble was in a patient applying for relief from a series of small nodules along the arm. As

usual, I drained each nodule of a small purulent collection, sought and found an old sore on a finger of the same hand, applied antiseptic dressings over all, and thought I had done well. Some few days later my patient reappears with conditions exaggerated. Being suspicious of possible syphilitic infection, I ordered potassium iodide, 15 grs., three times a day, and dressed as before. When next seen, the conditions seemed to be slightly improved. Treatment was continued on the same line. Meanwhile I found an interesting paper by Drs. Ruediger and Miller in THE JOURNAL-LANCET. This paper convinced me at once of the real nature of the infection, and I had much reason to congratulate myself for the timely information given me, because a number of cases came to my attention within a few months.

There is one other disease of increasing severity to which I must draw your attention. The infection has spread rapidly, and today nearly one-half our office-hours are taken up in fruitless discussions thereof. I refer to an infection which I shall designate as the "Trust Fund Disease." First, let me explain that a beneficent office at Washington, realizing how little labor is put upon the employes of the Health Service in the field, conceived the plan that certain Indians should be allowed to withdraw a pro rata share of the Tribal Trust Funds, approximately \$160, but on this condition: their application for the same should be accompanied by a letter from their physician detailing their disabilities, and recommending the approval of the application by reason thereof. Then, to make the plan complete, instructions again issue from the Indian Office to the physicians directly, giving instructions to recommend only those that are actually disabled, and that the particular disability must be specified. Conceive of a community of any race you please, 3,000 people or more, having a common fund held in trust by authority beyond their influence. Further conceive that this common fund is equal to approximately \$160 each,—men, women, and children,—and, after many years, it is suddenly decreed by authorities in charge that this fund be paid out to individual members of the community, not to every one indiscriminately, but to such applicants as are recommended by officers in charge, and under rules issued for guidance of these officers requiring recommendations for approval to cover two classes of these people: first, those who are deemed competent and self-supporting; second, those who are disabled.

An Indian must be blind, crippled, decrepit, or helpless from old age, disease, or accident; and the nature and the extent of his helplessness in being able to provide for himself must be shown. The Department is very strict in regard to this; and you should only recommend those who in your honest opinion would come under the above-mentioned requirements. You cannot be too particular in making recommendations.

You gentlemen will never realize the trail of trouble which has followed this innocent and well-meant order. The order is easy enough to follow, but how are you going to explain your refusals to an Indian who does not want explanations. He wants only his money, and he understands he can get it if the physician will write a letter, just a little thing—only write a letter.

No paper of this kind should be concluded unless some plan is submitted for correction of the conditions described. Let me, therefore, sketch an outline:

First and foremost, the positions of the physician employes in the service should carry salaries in keeping with the importance of their duties. These salaries should have a regular routine or plan for promotion and increase of pay, depending on length of service, and not dependent on political or personal friendship.

To keep the physicians well informed and up to date, they should be provided with new literature and medical publications; and also allowances should be made for encouraging them to seek postgraduate instruction at reasonable intervals. This encouragement should be of a substantial nature, and not niggardly nor stingy.

Another matter to be considered is the question of pensions, or retirement on part pay. This applies equally to all employes of the civil service. We find in the industrial world an increasing tendency to pension old employes. The question must be fairly met. A moderate salary with prospect of a pension after retirement from service, or else a salary sufficient to offset the lack of pensioning power, is demanded.

Medical inspectors and supervisors should be chosen from the ranks, and not from outside sources, giving us a genuine interpretation of the statement that the higher salaried positions are filled by promotion.

Leave of absence with pay is a privilege which should not be dependent on doing double duty, nor yet on hiring a substitute, who would likely cost more than the amount of one's regular pay.

In the matter of transportation necessary to enable physicians to fulfil expectations in answering calls, I suggest that horses and buggies are

today pretty old-fashioned, obsolete, and altogether too slow. Either furnish adequate means of transportation, or else put the burden and cost of transportation upon the party calling.

If the Indian understood that he incurred a financial obligation for every trip which he asks the physicians to make, it would have a tendency to make him restrict his requests to those cases where a trip might reasonably be asked. There would be less calling of physicians on trivial pleas, such as a headache, or to extract a tooth, or to dress a cut finger, or to ask the doctor to recommend trust funds; also a lessening of the calling of a physician merely to see if he will come, as in cases where the house is found locked or the supposed patient at work in the hayfield or chopping wood.

White people sometimes call the doctor for trivial reasons; but there we can collect our fees just the same. But, given people who can and do call the doctor for trivial reasons, or for no reason at all, and then these same people irresponsible, you can see the injustice to the doctor, and the interference with his usefulness in places where his services may be needed.

A well-equipped office, with facilities for efficient office work, should be the first consideration of the service. A small fee based on mileage should be charged against the funds of each individual in case an Indian calls on the physician for traveling any considerable distance from the office. Such fees might well be the perquisite of the doctor, in addition to his salary, with justice to all concerned.

The Indian Medical Service is either worth while or it is not. If it is worth while, then let the equipment be equal to the demands made upon it, and let the workers receive their just dues. We ask, not charity, but a reasonable return for the service performed. The Government is justly to be commended for its liberal treatment of its Indian wards, but it is not to be commended for the treatment of its citizens employed in the Indian Medical Service. It should not require a missionary spirit as a necessary qualification, in addition to a medical education. Under present conditions of salary and employment, which have not been materially modified or revised in many years, a physician not having a missionary spirit will not be attracted, or, if attracted, will not stay in the Indian Medical Service long enough to become proficient in his duties.

The Commissioner further states:

I am emphasizing the need of obtaining, and doing everything possible to obtain, for the Indian more sanitary homes, more adequate school facilities, supplying sick Indians with medical attention and taking precautionary methods to prevent disease.

Is it not about time that someone was "emphasizing the need of and doing everything possible" to obtain for the workers in the field more adequate compensation and more reasonable conditions of employment?

My thanks are due, and are extended, to Dr. E. P. Quain, of Bismark, for assistance in preparing this paper.

#### DISCUSSION

DR. A. J. McCANNEL (Minot): I wish to express my appreciation of the paper that has been read, and to state my sentiments in regard to the self-sacrificing men who are in the Indian Service. I have always known that we had in this work self-sacrificing men, and I have always known we have had capable men; but I did not know they worked under such handicaps. Of course, we have all known that in the eyes of the Government at Washington a hog or a chicken is worth a great deal more than a human being, so that the fact that a veterinary is paid fourteen hundred dollars a year, while a medical man is paid seven hundred to a thousand, is not, I take it, a surprise to any of us. If we had only belonged to the four-legged family, the Government at Washington, of course, would look upon us in a little different light, and the Indian wards would

get at least as good treatment as the hogs do. I used to think this could probably be remedied. I am getting a little older now, and I have begun to wonder if we do not look at the life of a man, or a woman, or a child, in the wrong way. I have wondered, when the authorities, the men who have the say in things, are so set in their opinion that the four-legged creatures are of more value than we are, if possibly we are the ones that are mistaken, and if we might as well settle down and accept their viewpoint. It is coming to look more and more that way with me every year. I believe that light will break in upon them some time. It may be a long distance in the future, a good many of us may not see it; but light will break in upon them, and the time will come when a human being will be worth at least as much as a common, ordinary hog in the eyes of our Government.

There is one other thing I want to say. I want to congratulate Dr. Rice upon one thing. I wish I could congratulate every other man in the room on the same thing, but I don't believe I can. Dr. Rice has been working under serious handicaps, and yet he himself admits that his practice has doubled in the last year. If there is any other man in the room that can make the same statement, I wish he would stand up.

The paper has been very interesting. I have enjoyed it, and I believe we have all enjoyed it, and I want to thank Dr. Rice for this very informing paper.

DR. RICE (Essayist): I fear my language was susceptible of a double meaning. I have been at the Agency nine years, and the last year's work was fully twice as much as the first year's work.

## PRIMARY MELANOSARCOMA OF THE OVARY: PRELIMINARY CLINICAL REPORT\*

By GILBERT GEOFFREY COTTAM, M. D., F. A. C. S.

SIoux FALLS, SOUTH DAKOTA

PATHOLOGICAL REPORT AND BIBLIOGRAPHY BY MORTIMER HERZBERG, M. D.

VERMILION, SOUTH DAKOTA

The subject of pigmentation in the human body is one of the most interesting things in pathology, or even in normal conditions. We know that melanin occurs in the body, normally, in some considerable proportion, that its normal habitat is in the two great structures, in the rete mucosum of the skin in the white race, and also in the pigmented tissues of the eye. Of course, in the colored race it permeates the other skin structures, but my remarks will be entirely confined to the white race because we have no interest in the other side of the proposition just now.

This occurrence of pigment under normal conditions is interesting in a pathological connection,

because we find when it comes to a clinical proposition that pigmented growths occur with much greater frequency in those parts of the body where the pigment normally occurs. The oculists will bear me out, I believe, in saying that pigmented growths in the eye are relatively common,—that is, while they are not every-day occurrences, yet they are not among the rarities. Every once in a while an oculist in active work will stumble onto a pigmented growth of the choroid, for instance; and likewise in the skin pigmented moles, peculiarly prone to malignant degeneration, are not at all uncommon.

I might go into many features of the subject, which Bland Sutton considers one of the very interesting things in our work. I do not want to go into all the details, because the well-known

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facts are encyclopedic, and can be found by anyone who desires to look them up in the text-books; but I want to call your attention simply to the fact that the erratic distribution of pigment in the body is of great clinical and pathological importance. We know, for instance, that, when pigment is absent from the eye, we find it absent from other parts of the body also, and *vice versa*, producing the condition known as *albinism*, in which pigment is practically absent; while its antithesis, *melanism*, in which the pigment preponderates, is relatively a rare thing.

Now, I come to a case in point. The patient was a single woman, aged 38, engaged in the profession of teaching. Her history was quite uneventful. She had had a good health-history with the exception of an occasional sporadic case of tuberculosis in her ancestry. She lost a brother from tuberculosis of the spine; and a sister, who is now living, is supposed to have chronic tuberculosis, but it is apparently quiescent. That is about all in the history of any importance.

In her own personal history there is this: Last year she made an extensive trip, practically a trip around the world, and she considers that she over-exerted herself considerably. She was with a companion who insisted on taking in everything, and she over-walked and kept long hours and tried to take in all the sights possible on that long trip. She mentioned that as being a possible factor for the one symptom for which she presented herself, which was a feeling of lassitude, which could not be overcome by ordinary medicinal treatment. She had consulted a competent physician, and had been given tonics and the usual advice for a run-down condition, but without effect. The last three menstrual periods that occurred before she consulted me, were unduly protracted. They had lasted ten days or more. Outside of that she had been perfectly normal. There was, therefore, really very little of a focal nature in her history.

I gave her a very thorough workout with laboratory examination of the blood and excretions; and the only thing I could develop was a little tenderness on bimanual examination in the left fornix, and a little sense of tumefaction, which was rather ill defined. I confess I felt I was rather straining a point when I advised operation. I am not much of a believer in a man's instinct telling him something, but sometimes it will do it, and this time my instinct was working. I advised operation, although I was frank to state to the patient that I felt in my own mind that I

was a little uncertain as to what the findings might be and as to whether I might even find sufficient justification for the operation; but she was sensible about it and willing to take her chances.

Cutting the story down to a few words: I found a pigmented growth in the right ovary, which apparently was primary. I say *apparently* because they are so excessively rare I could hardly believe it could be a primary melanosarcoma; and I looked everywhere for a possible primary focus,—in the skin and elsewhere,—but without any success at all. There appeared to be no other focus. This seemed to be the primary focus in the right ovary and broad ligament, principally in the ovary. The ovary was down in the pelvis, and as I loosened it up with my fingers there escaped some of the most inky-black matter I ever saw. It was so much blacker than any disorganized blood could be that I made up my mind that it could not be that, although I hoped it might be because it would make such a difference in the prognosis.

I made a very thorough excision. I removed everything that looked the least bit suspicious. There was one feature which looked suspicious and which I was not able to do anything with, and that was a peculiar mottled pigmentation of the peritoneum close by the growth and also of the lower part of the great omentum. That pigmentation looked to me as though this cystic accumulation might have leaked, and some pigment been merely deposited on those surrounding structures. I hoped that to be the case. If it was nothing more than a deposit of old blood of course it was a simple matter. If it were melanin, of course, it was very different. So, after removal of the structures, I submitted them to two laboratories for examination, and I will now read you Dr. Herzberg's report.

TUBO-OVARIAN TISSUE—PATHOLOGICAL REPORT BY  
DR. HERZBERG

Gross specimen consists of normal-appearing tube and fimbriae with a mass of ovarian tissue attached. This latter tissue consists of three cystic bodies, all of which have been opened and the contents evacuated. The larger cyst is about the size of a large walnut. Its wall averages about one-eighth of an inch in thickness. It is unilocular, the walls being somewhat wrinkled. Internally, the wall is without pigment, save for a few diffuse brown spots, as of petechial hemorrhage; externally, there are, here and there, a few small, deep-brown particles adherent to the wall, looking like small masses of coagulated blood. These masses are quite firmly attached.

At the inferior and outer end of the large cyst, is a

small cyst, about the size of a small cherry, which appears as an off-shoot from the large one. Its walls are, for the most part, paper-thin, except where attached; they show no marked abnormality. This cyst is also unilocular.

External to the large cyst and lying above the small one just described, is a cyst apparently the size of a large chestnut. The walls of this cyst are also quite thin, except where attached to the large one. Externally, they are smooth and of a dark-grey color. Internally, they seem somewhat wrinkled and are of a deep-brown color. The wall seems to be made up of two layers, the inner one being pigmented. This layer can be separated from the outer by the finger-nail. Several of the blood-clot-like bodies are to be found on the outer surface of this cyst. Section through the cyst-wall at one of these points would seem to indicate that the pigment is an implantation, rather than an extension through the wall of the pigmentary layer lining the cyst.

Two small pigment spots, deep brown in color, were found on the fimbriae of the tube. These spots were less than a sixteenth of an inch in diameter.

Sections were taken from various parts of the tube and ovarian cysts for histological study. The areas selected were principally those showing areas of pigmentation. These pigmented areas contain pigmented cells and newly formed blood-vessels, usually capillary in type. The cells vary considerably in appearance as to size, shape, and character of pigment. In shape the cells vary from spindle-form to large rounded and polygonal forms, resembling in some instances luteum cells. The pigment in some is greenish to yellow; in others, golden brown to black. The pigment is for the most part finely granular. It does not give the iron test for blood.

A section through the wall of the pigmented cyst shows an outer wall of fibrous tissue, upon which lies a layer of more or less loosely-bound-together cells of varying shape. The more internal cells of the inner layer are round to polygonal and contain a light-yellow to golden pigment. The outer cells of this layer are flattened and spindle in type, as if by pressure. Their pigment is greyish-black in color. Here and there in the denser wall of the largest cyst may be found microscopic deposits of pigment.

Our reasons for believing this to be melanomasarcomatous are based principally upon the finding of the pigmented metastatic nodules on the peritoneal surface of the tissue as a whole. We are of the opinion that a malignant conversion has taken place in a corpus luteum, perhaps due to some perversion of the coloring matter there deposited. Speculation will not add to the actual facts.

In looking over such literature as we have covering the subjects of tumors, general pathology, and gynecological pathology, we have found only one reference to the subject of melanomasarcoma of the ovary.

This reference is in Volume II of "Liepmann's Handbuch der Frauenheilkunde," which is dated Leipzig, 1914. In view of the apparent rarity of the condition, especially as a primary site we beg leave to quote the following translation:

"The melanotic sarcomata of which about forty have been described up to the present time, are, as a rule, secondary; and as ovarian sarcoma, they represent one of the many metastatic growths which involve the entire

body. The primary lesion lies in the skin, in the choroid, and in the adrenals; or it may not be discoverable. A small number of cases are probably primarily ovarian in origin, as the cases of Amann, Lorrain, Soubeyran & Rives, Markus, Winternitz, and perhaps also the cases of Andrew and Bab. As a cause of primary ovarian melanomasarcoma the presence of teratomatous-skin inclusions comes into question. A strengthening argument for the existence of a primary tumor is whether bilateral or whether total destruction of the ovarian substance by the tumor is observed. Then, too, secondary tumors can be bilateral, and destroy the entire ovary.

"The melanomasarcomata are colored dark-brown to deep-black, but the pigment may be thinned and scarce, or entirely absent in places. The tumors are not always solid, but occasionally contain cystic spaces.

"The histological composition is recognized by the existence of two components. The one originates from round, spindle, or polymorphous sarcoma cells, the other from polymorphous stellate melanin containing cells, the chromatophores of Ribbert. The pigment can also lie free in the interspaces. The pigment cells are not evenly distributed through the entire sarcoma, but may, on the one hand, be very numerous, on the other very scarce, and again, in other places, be entirely absent.

"Ovarian sarcomata are capable of implantation upon the peritoneum, and also produce visceral and lymphatic metastasis. Schottlander observed in cases coming to operation that 45.5 per cent showed metastasis. From the literature it is to be noted that the most varied parts of the body may be the seat of metastatic growths."

The following translation from the same source upon the subject of corpus-luteum cysts may be of interest in connection with this case:

"The formation of the corpus-luteum cysts, which were first described by Rokitansky, is to be differentiated from the follicular luteum cysts. One understands by this the cystically dilated corpus luteum. They occur as single-chambered, thin-walled cysts, seldom of any great size, whose cavities contain a yellowish fluid, and are lined by a green-brown membrane, which may be stripped off. It has already been intimated that through infection these cysts may become abscesses; rupture and hemorrhage have also been mentioned. Histologically, these cysts show various pictures, according to the stage of development at which cyst-formation took place; and, further, the size of the cyst depends upon the workings of internal pressure.

"The diagnosis is not difficult if one sees the well-defined granular luteum cells of the corpus luteum arranged in typical manner. If the cyst-formation occurs in the stage of hemorrhage of the corpus luteum, one finds the luteum cells covered over by a connective-tissue layer, which the epithelium presses against the fluid. In larger cysts the cell-layer is not preserved. Instead of this one finds a hyaline boundary-layer with pigmented particles."

I have gone into these details because to me this case is one of absorbing interest. It has been said that one should talk about the common everyday things in these meetings of medical societies. That is true, but it is well also to think occasionally of the rarities, because we are all meeting

them. There is not a man in this room who does not, at some time or other, run across some case about which he cannot get any track in the literature, or find anything in his conversation with his professional confreres, that throws any light whatever upon it. These things are subjects we can well think over. We are accustomed to thinking of the largest clinics as having the rarities, but that is very far from true. As I talk with men in different parts of the State, they tell me of cases which, if reported, would be of interest to all of us.

#### DISCUSSION

DR. M. A. STERN (Sioux Falls): I think Dr. Cottam and Dr. Herzberg are entitled to a great deal of credit for the pains to which they have gone to present this unusual case before the Association. It is certainly a case of unusual rarity.

About three years ago I had occasion, when writing a paper on tumors of the ovary, to look up this question of melanosarcoma of the ovary, and I found in "Kaufmann's Pathology," of 1911 or 1912, that he cites only five cases of primary melanosarcoma of the ovary, and in four of those it was very doubtful whether they were really primary melanosarcomata. He thinks they came from some undiscovered deposit in other places, such as the skin.

I think that we should pay special attention to this case because it is one of such undoubted rarity. I did not quite gather from what the doctor said whether they had decided whether it was a primary melanosarcoma of the ovary or was a tumor originating perhaps, not sarcomatous, from a degenerated corpus luteum.

DR. N. J. NESSA (Sioux Falls): I wish simply to report a case. This is not a case of melanosarcoma of the ovary, but of the cervical lymph-glands. At the time Dr. Herzberg also made a laboratory examination of this specimen. The case was one of melanosarcoma of the lymph-glands of the neck. The patient was a woman, aged about 33 or 34. She was married, and had raised a family of three or four children. It was after I came to Sioux Falls. I was back at my old town, and was called in to see this woman who had been failing for some six months time. Her husband told me that she had a little lump on the neck. He thought I ought to come up promptly, and lance it. I did not go up to the house until evening, when I found that she had a swelling or an enlargement over the left mid-sternocleidomastoid muscle about in this region (indicating), about the size of an ordinary horse-chestnut; and the thing that struck me particularly was the color of the growth. It was not black, neither was it white, but a sort of a translucent-bluish color. I told the husband that I did not think it would be advisable for me to open it, but I advised that it should be excised, stating that growths of such nature sometimes were of greater significance than people in general surmised. She came to see me a few days later, and the growth was excised. Fully half an inch on each side of the growth beyond the discoloration of the skin, was included in the excision; and the growth shelled out very readily. It was not adherent to the fascia of the ster-

noleidomastoid; but the fascia was removed with it underneath. There was no other growth present in the neighborhood, and it seemed that everything was being removed. The wound was swabbed out with, I think, tincture of iodine, and the edges were united. It healed up by primary union. I took a section, and sent it down to Vermillion for examination. Dr. Herzberg gave a report quite similar to the one that has been read, stating that in view of the prognosis in this class of cases that the x-ray treatment, if possible, should be followed up as a post-operative measure. I had her come over here for about two months, twice a week, for x-ray treatment with the soft ray.

As I stated before, she was getting along very nicely; then she quit coming, and the reason for this was said to be that the trip seemed to tire her out considerably, it being a distance of seventy-five or eighty miles, and it seemed that she was again beginning to lose strength. I heard nothing more of her until on a subsequent visit to her town about four months after the growth had been removed. This was in the middle of the night; and the husband asked me if I would come up and see his wife, that she was failing quite rapidly. I went to see her, and I found her a mere shadow of her former self. She had wasted away almost to a living skeleton. If she had a dozen, she had two hundred growths over her body in the skin, varying in size from the size of a small pea to that of an English walnut, the largest ones being in the region of the groin and some in the axilla; and, as I stated before, her entire body seemed to be literally covered with these melanotic growths. She died inside of ten days.

This brings again to our minds the very bad prognosis in these cases.

DR. S. M. HOF (Yankton): I shall ask Dr. Cottam to bring out two points in his closing remarks. One is with regard to urinalysis, and the other is the progress of the case up to the present time, also the prognosis from his standpoint. I speak of urinalysis from the fact that not long ago I was wandering about Chicago, and fortunately ran into the Cook County Hospital, where a series of post-mortems were being held. At this particular time a body was being examined, and the findings were subsequently discussed by Dr. Arthur R. Edwards, whom many of you undoubtedly know. It was a case of melanosarcoma of the right adrenal. Dr. Edwards dwelt very strongly upon the urinary findings, in that the urinary findings would be one of the first symptoms indicated in this particular form of tumor by pigmented granules found in the urine. I hope the essayist will bring out in his closing remarks the findings in this very interesting case, in regard to the urine.

DR. COTTAM (closing the discussion): I thank the gentlemen who have participated in this discussion for the interesting remarks they have made in connection with my paper.

In regard to the final diagnosis, inquired about by Dr. Stern: We must of course rest upon the laboratory for that. Dr. Herzberg's opinion was that this was a melanosarcoma, originating in a corpus-luteum cyst.

I was interested in Dr. Nessa's description of his case because, while it is not exactly in conformity with the case I report, it throws some interesting side-lights upon melanosis. One point which he brought out was one which I did not emphasize very much, and that was this,



that in these pigmented growths you find all grades of pigmentation. I spoke of the inky-black deposit in one of the cysts that was opened during the operation. The other two cysts did not contain nearly so black-colored a pigment. In fact, one of them was almost free from it. But the color of any of these deposits varies from the inkiest black down to almost green; so that one should always bear in mind the possibility of it being true melanin if that pigmentation is present. The melanin test should always be applied, in order to clear up that point.

In regard to Dr. Hohf's two questions: As to the urinalysis in this case, I will say that it was not until after the operation that we had an examination made for possible melanin in the urine. We knew that it should be there, but we were not able to find it; and there is some question about whether it should be there in the earlier stages. I would take Dr. Edwards as authority in the matter; but there are others who differ with him, and say that the melanin in the urine is rather a manifestation of a generalized melanosis. I would surely have expected to find it present in Dr. Nessa's case. Perhaps it may begin to appear in my case after a bit; but it has not been present so far.

As to the prognosis: I believe there is no dispute about the question that the prognosis in these cases is absolutely and uniformly bad—that of all malignant conditions it is the worst. It is the one malignant condition in which there does not seem to be a ray of hope.

I operated on this patient only about a month ago.

She has made a good operative recovery, and she feels better than she has felt for two or three years. I made a clean sweep of all the affected parts, except, of course, I could not remove the peritoneum of the intestines that were adjacent to the parts, but for the time being she has gained in weight and has gained in every way. But I look for an early recurrence in the case. I do not see how she can possibly avoid it, unless we are absolutely all wrong in the diagnosis, and there is nothing to show that we are wrong. The findings are pretty conclusive. I am afraid that, in the course of a few months, we shall be confronted with unmistakable symptoms of recurrence; and it will simply go on and on, as in the case so lucidly described by Dr. Nessa, to a fatal termination. That is all I know about the prognosis in this case.

DR. B. A. BOBB (Mitchell): I would like to have Dr. Cottam report this case to THE JOURNAL-LANCET. It is certainly interesting to all of us, and we would like to know the outcome of it.

DR. COTTAM: I would like to say that, in view of the recent occurrence of this case, I look upon this report as only a preliminary one; and I do not feel as if this case ought to be reported until a little more time has elapsed, in order to make a complete report. I shall either send it in as a preliminary report or else make a subsequent report in THE JOURNAL-LANCET following it up. It seems to me that a matter of this kind is not complete until the last returns are in, be they good or bad.

## THE HISTORY OF A CASE OF SPLENIC ANEMIA, INCLUDING EARLY SPLENECTOMY AND AUTOPSY TWO YEARS LATER\*

By THOMAS S. ROBERTS, M. D.

MINNEAPOLIS

The comparative rarity of splenic anemia and the difficulties encountered by clinicians in the proper understanding and assignment of cases of this type, justify the recording of all data possessed of reasonable completeness.

The rarity of this affection is attested by the fact that Osler's monographic article,<sup>1</sup> published in 1902, was based on a study of only 18 cases, and that Rolleston was able in the same year to collect only 37 cases in the literature although the disease had been known under its present name since 1866. Giffin's paper,<sup>2</sup> published last year, reports but 18 cases at the Mayo clinic, inclusive of the present one.

The recognition of a definite, clinical entity under the name *splenic anemia* seems now to be generally agreed upon, but there is still apparently considerable uncertainty as to the re-

lationship between the accredited symptom-complex and the underlying pathological condition to be found in any particular case. A recent article by Wilson, of Rochester, on "Pathology of Splenomegaly"<sup>3</sup> emphasizes this fact; and King, of Baltimore, in a paper on "Studies in the Pathology of the Spleen,"<sup>4</sup> published in the *Archives of Internal Medicine* in the present year, says in his opening paragraph that "as yet little progress has been made in the attempt to correlate changes in the spleen with clinical symptoms." Giffin remarks in one of his papers that "the examination of spleens removed from patients regarded from the clinical standpoint as cases of typical splenic anemia, reveals no constant histological picture." And, again, in the same article, "The results of medical, surgical, pathological, and experimental experience must be reported abundantly before a correct grouping can be even attempted."<sup>2</sup>

\*Read at the 46th annual meeting of the Minnesota State Medical Association, St. Paul, October 1 and 2, 1914.

Therefore, the following case, the clinical history of which is fairly complete and which is supported by pathological reports on the spleen and on post-mortem findings, both by competent pathologists, is submitted for your consideration and as a slight contribution to the general subject.

Osler makes *chronicity* an essential feature of splenic anemia. While the present case had rather a short known history to fill this condition, it seemed to fit the syndrome of splenic anemia better than anything else; and this diagnosis was apparently supported by the autopsy.

#### CLINICAL HISTORY

Mrs. A. C.; married; in 56th year when she first came under observation on April 11, 1912; born in St. Louis, Mo., where she lived until her twenty-second year; then moved to Minneapolis, where she resided until her death.

*Family History.*—Father died in advanced years; had some mental trouble during last six or seven years of his life, described as "softening of the brain." Mother died at 62 of cancer of the uterus. The subject of this history was the oldest of seven children, five of whom died in infancy or early childhood; the sixth a girl, lived to middle life, was always delicate, had chronic malaria, and died after an operation said to have been for floating kidney.

*Past History.*—Had only simple ailments of infancy and childhood; no severe illness of any kind then or since. Was married at 29. Had only a single pregnancy, ten years after marriage, which went to term; the child, a girl, is living and is now well and vigorous, though for the first ten or twelve years of her life she was frail and sickly, due to almost unconquerable disorders of general nutrition.

The patient never had malaria, though living during the first part of her life in a malarial zone and surrounded by victims of the disease. Menstrual life was normal; menses ceased at about fifty without disturbance of any kind.

Mrs. A. C., who was well known to the writer for many years previous to the final illness, was a small but well built woman, vigorous and energetic both physically and mentally; possessed of excellent endurance, and rarely sick or incapacitated in any way. Thus the personal history is devoid of any salient features of importance, though the family record might be considered to be suggestive of some underlying physical defect.

#### HISTORY OF PRESENT ILLNESS

*Complaint.*—When the patient came to the office on April 11, 1912, for consultation, it was because she had unusual shortness of breath on going up stairs or walking up an incline, and sometimes had palpitation or pounding of the heart following quick exertion. She tired easily, and felt inclined to lie down toward the end of the day. Her friends told her she was growing pale; but she did not consider herself sick, and had not altered her habits of life materially.

She said she had not been just normal for about one year. Last fall she began to feel "bloated" and op-

pressed by night, and always wanted to take off her clothing as soon as possible. About Christmas she first noticed shortness of breath and an unnatural tired feeling. Two months later, the first pallor appeared with increasing fatigue and dyspnea and pounding of heart on exertion, with often throbbing of the whole body and surging in ears at night.

*Examination.*—A well-nourished woman without loss of weight. Marked pallor of skin and mucous membranes without icterus or other discoloration, except freckles on arms and a few similar spots on the left side of the abdomen that had appeared recently. Digestion, fairly good; some loss of appetite lately. Bowels, normal. No edema anywhere, except slight puffiness of lower eyelids. No throat or mouth infection. No nasal or sinus disease. Ears, normal. No enlarged lymphatic glands. Heart, normal, a soft blowing systolic murmur heard best over mid-sternum; pulse, 72, regular; systolic blood-pressure 130 mm. of mercury. Lungs, normal. Pelvis, normal. Rectal examination, negative. Abdominal examination revealed a smooth tumor projecting about two inches below the anterior segment of the left costal arch, and reaching the mid-line of the abdomen two inches below the ensiform cartilage. This tumor was somewhat movable, easily palpable, with an apparent notch on the lower anterior border, making it reasonably certain it was an enlarged spleen. There was no tenderness, and the patient did not know of the presence of the tumor. The liver dullness appeared slightly restricted in the nipple line. There was no fluid in the abdominal cavity.

The urine was deep yellow in color; acid; sp. gr. 1024; albumin, negative; sugar, negative; microscopic examination showed an occasional epithelial cell, an occasional leucocyte, a few oxalate crystals, and three or four cylindroids,—a normal urine.

The blood examination showed hemoglobin, 60; w. b. c., 6,500; r. b. c., 3,600,000; color-index .9. There was some irregularity in the size, shape, and staining reaction of the red cells,—a secondary anemia picture.

A diagnosis of probable splenic anemia was made.

Fowler's solution and Bland's pills were prescribed, and beef extract and eggs advised as an important part of the diet.

*Progress of Case.*—From this time (April 11) until June all the above symptoms of asthenia gradually grew more marked, but the patient was about the house as usual and went out occasionally. On April 14th to 17th a careful record of the temperature was made, which showed it to be normal. On April 18th a Wassermann made by Dr. R. H. Mullen, of the University of Minnesota, was negative. The blood-picture remained about the same, the variations in five examinations being as follows: Hemoglobin from 50 to 60%; w. b. c., 3,200 to 6,000; and r. b. c., 3,200,000 to 4,000,000. A differential count of 500 cells made on April 17th showed p. m. n., 58.5%; lym., 36%; eos., 3%; mast cells, 2%, with four cells indefinite. A count made June 1st, five days before operation, showed hemoglobin, 60%; w. b. c., 5,000; r. b. c., 3,500,000; p. m. n., 60%; lym., 28%; eos., 5%; mast, 5%; one megiloblast; two normoblasts, with some poikilocytosis and anisocytosis. The pallor and weakness increased without corresponding changes in the blood. There were no hemorrhages.

There developed much gastric and intestinal disturbance, characterized by flatulence, indigestion, abdominal

distress, and alternating attacks of diarrhea and constipation. This combined with a natural aversion to the most suitable foods, made the securing of an adequate diet almost impossible. Medication also had to be suspended, as arsenic, iron, manganese, and, in fact, all indicated remedies were not tolerated either by mouth or hypodermically, even in the smallest doses. The spleen did not increase in size, the liver dullness remained the same, no ascites or edema appeared. Still the patient was visibly failing and mental disquietude, with a despondent outlook, became an established condition.

Dr. S. Marx White saw the patient in consultation on April 25th, and acquiesced in the diagnosis. About June 1st, a little more than six weeks after the discovery of the disease and some six or seven months after the first indefinite symptoms had appeared, splenectomy was considered as offering the best hope of arresting what seemed to be a rapidly progressing condition. So, after a thorough review of all the factors in the case at the Mayo clinic, the spleen was removed by Dr. W. J. Mayo on June 5, 1912. There was no perisplenitis, and the operation was accomplished quickly and without difficulty. The liver was found normal in size, and the gall-bladder healthy. The spleen weighed 980 grammes ( $30\frac{5}{8}$  oz.), nearly six times the normal weight. The dimensions were  $18 \times 12 \times 8$  cm. The examination of the spleen, as reported later by Dr. Louis B. Wilson in his paper on "The Pathology of Splenomegaly: A Study of the Operative and Autopsy Material from the Mayo Clinic," published in *Surgery, Gynecology and Obstetrics*, for March, 1913, in which series this case is No. 16, was as follows: "Exterior smooth; cut surface soft, smooth, dark colored; lymphoid tissue markedly increased; some swelling of endothelium in venous sinuses; a few giant cells; considerable connective tissue increase. Pathological diagnosis, chronic, diffuse splenitis."

I will leave to Dr. Bell any further consideration of the pathological aspect of the spleen, as Dr. Wilson has kindly furnished him with the material.

There was no special shock from the operation and a speedy, uncomplicated recovery took place from the surgical procedure without disturbance of temperature except a temporary rise to  $100^{\circ}$  the second day, and a moderately accelerated pulse—never over 95—for several days. But the gastro-intestinal symptoms previously present were greatly increased with much abdominal tenderness and distension, especially below the navel. This condition persisted for

many weeks, and was the cause of great disability during convalescence. There was much of the time a visible fullness and a sense of weight as of a tumor. It prevented the patient lying on either side, wearing ordinary clothing or walking except in strained or awkward fashion. This continued throughout the fall and winter, and only wore off gradually during the second summer. There seemed no evident explanation.

Shortly after the operation there developed an intense and curious disturbance of the mental state characterized in part by excessive worry and anxiety about everything, however unimportant. This was, it is true, to some extent but an exaggeration of the normal temperament of the patient; but the curious feature was a great and never-ceasing volubility, which was almost like a mental intoxication and wholly strange to the patient. Immediately upon anyone entering the room, the patient began a rapid and uninterrupted flow of speech upon any and all topics, often without any special relevancy, and this was accompanied by an incessant agitation of arms and legs and movements of the head with an eager and expectant expression of the face. There was no controlling these nervous demonstrations; and of course they wearied and depleted the patient. It was not until late in the summer or early fall that this mental excitement quieted down, and there was a return to a normal equilibrium. This singular post-operative condition may have been due simply to some special idiosyncrasy of the patient, but it may be mentioned that the nurse who had charge of the case after leaving the hospital, said that very much the same thing had been observed by her and her associate nurses in other cases of splenectomy.

The patient returned home from Rochester on July 7, 1912, a little more than four weeks after the operation, and was confined to the bed or room under a nurse's care for the remainder of the summer and early fall with the physical disabilities and mental unrest just described. The difficulties in feeding and absolute inability to medicate in any appropriate way still continued, and, it may be said here, persisted throughout, and possibly had some effect in preventing any substantial gain. The mental state, too, was antagonistic, the patient being much of the time hopeless and despondent.

A blood examination made at Rochester July 3rd, four weeks after the operation, showed



hemoglobin, 60; r. b. c., 4,320,000; w. b. c., 15,600; small lym., 11 per cent; large lymph, 9 per cent; p. m. n., 77 per cent; eos., 1 per cent; bas., 3 per cent; trans., 3 per cent; normoblasts, 1; poikilocytosis present. This increase in the leucocytes after the operation—treble the number present in an examination made two days before the operation—is frequent in these cases, and in this patient persisted to the end as is shown in the accompanying table. One week later, July 10th, the hemoglobin was still 60 per cent with whites reduced to 9,000, and reds to 3,400,000, with the differential count of 500 cells, showing little change. The following week, July 17th, six weeks after the operation, the hemoglobin was up to 70 per cent; whites, 15,600; reds, 3,600,000, with an increase in the large granular cells; eosinophiles, 6 per cent; mast cells, 5 per cent, which continued thereafter. Poikilocytosis and anisocytosis more marked. During late September and October when the patient was distinctly improving the hemoglobin rose to 75 per cent, the highest point reached, and the erythrocytes were over 4,000,000, with the leucocytes as before. An examination made on October 14th showed an increase in the irregularity in shape and size of the red cells with the presence of many microcytes.

About the middle of October the patient began to gain in strength and spirits so that she was able to go out some and to a limited extent resume her former life. By Christmas she was well enough to go out with her family to a Christmas dinner party at a friend's house. This improvement continued, and early in February, 1913, she went with friends to Florida, as the severe winter weather at home confined her almost constantly indoors. But the trip proved fatiguing, and conditions in Florida unfavorable; and she was soon confined to bed or chair, and she lost strength steadily. On the morning of February 25, 1913, nine months after the operation, there occurred, without special exciting cause, an emesis of about six ounces of blood, the first hemorrhage of the illness. The psychic effect was bad, and the patient was much prostrated. Early in March she returned home. A blood-examination made at this time showed hemoglobin 60 per cent; w. b. c., 20,000; r. b. c., 4,400,000; p. m. n., 54.5 per cent; lym., 26 per cent; trans., 4.5 per cent; eos., 10.5 per cent; mast, 4.5 per cent with two megaloblasts, 6 normoblasts, and two or three myelocytes in a count of 500 cells, marked anisocytosis, moderate

poikilocytosis, and many platelets. A distinct rally took place again; and during April and May occasional brief outings were possible. Late in May she went to a near-by country place for a change, and here on May 28th experienced a second gastric hemorrhage, vomiting about eight ounces of blood. Returning to her home on the 29th she had the following day another hemorrhage more severe than the other, losing by vomiting thirty-seven ounces of blood, in addition to a considerable amount that passed through the bowel. Two doses of coagulose (horse serum) were administered hypodermically at this time. For a month or more after this the patient was in bed with a trained nurse. On June 3rd, five days after this severe hemorrhage, a blood-examination showed hemoglobin, 60 per cent; w. b. c., 25,000; r. b. c., 1,360,000. Now for the first time fluid appeared in the abdominal cavity; and while at no time thereafter was it entirely absent, there was a remarkable and unexplainable variation in the amount present. At times the abdomen would be quite fully distended with fluid, especially during the final months; and then with an interval of not more than a day or two it would disappear to such an extent that it was difficult to demonstrate the residue. Dr. Cross, who attended the patient for a time during the early months of 1914, had several opportunities of observing this unusual phenomenon.

Urinary analyses made during the first six months of 1913 showed an acid urine, with total secretion about two-thirds normal; specific gravity, about normal; an occasional faint trace of albumin; no sugar; a few hyaline casts; and the urea output about 1 per cent. This nearly normal urine persisted to the last, which is perhaps worthy of special comment in view of the rather well-marked morbid changes discovered in the kidneys at autopsy.

During the third week of June, 1913, Dr. Frank Billings examined the patient, who was then confined to bed in an exhausted, enfeebled condition. He concurred in the original diagnosis, and considered the outlook at this time hopeless.

A progressive loss of flesh had been going on for some months, so that at this period the patient was much emaciated; and this condition continued to increase to the end.

From July, 1913, to the following spring, a period of nine months, no incident of special importance occurred. A gradual improvement

took place during the summer, which by fall had again developed into a decided rally, so that by December the condition of the patient was seemingly better than at any time since operation; and to the casual observer it began to seem as though the gloomy prognosis of early summer might reasonably be modified. But there was no gain in flesh, and the gastro-intestinal disturbances continued unabated. These periods of improvement simulated those so characteristic of pernicious anemia, but were less pronounced, and there was not the corresponding improvement in the blood-picture seen in that disease. A blood-examination made on September 9, 1913, showed hemoglobin, 70 per cent; w. b. c., 24,500; r. b. c., 3,800,000; p. m. n., 45 per cent; lym., 20.5 per cent; eos., 27 per cent; mast cells, 6 per cent; myelocytes, 4 per cent; trans., 6 per cent; and two normoblasts in a differential count of 500 cells. Poikilocytosis and anisocytosis were very marked, more so than at any previous examination.

In spite of the seemingly improved general health, the fluid in the abdominal cavity was markedly increased, and was more permanent during late winter and March than previously, so that the abdomen was greatly distended much of the time, causing inconvenience and discomfort.

Early in the afternoon of March 25, 1914, after a morning of gastric distress and uneasiness, an attack of syncope occurred in the bathroom with symptoms of internal hemorrhage. The following morning large tarry bowel-movements appeared, and at noon an emesis of four ounces of blood. The next day more blood was passed by the bowel, and twelve ounces vomited. Coagulose was administered hypodermically by Dr. Cross, who was in attendance and to whom the writer is indebted for the records of this period. Blood continued to be passed by the bowel for nearly a week; and the patient was much exsanguinated and exhausted, and was never able to leave her bed afterward, except to sit in a chair for a few minutes for a few days just before the final hemorrhages in July.

On April 5th an inflammation of the left lung appeared, and soon after an area of consolidation was evident at the base. The temperature reached 103° on the 7th; and cough, rapid pulse, and temperature above normal continued until April 19th. After this date the lung condition speedily cleared up, and the temperature returned to normal.

On April 23rd another hemorrhage occurred, accompanied by epigastric pain, faintness, and nausea; but no blood was vomited. A considerable amount, however, was passed by the bowel during several days.

During the second week of May there was a brief return of the pulmonary inflammation, both lungs being involved, but no evident pneumonic areas.

On May 10th and 11th another hemorrhage took place; and much blood was lost, both by emesis and in dejections.

After the middle of May there was almost constant pain in the legs, seemingly in the bones; and for some time there was a severe pain in the left knee without objective symptoms. During this final period the gastro-intestinal disturbance was most intense with much nausea and vomiting of food, obstinate constipation, a greatly distended and painful abdomen, the ascites, however, still fluctuating in amount from day to day, constant severe backache and often headache, and the emaciation becoming extreme, especially of the lower extremities, which were reduced to little more than skin and bones. The temperature was usually normal—only an occasional rise to 99°; the pulse, not much accelerated; the mind was clear and active—not a trace of the weakness or wandering so often seen in the last stage of pernicious anemia, explained no doubt by the better preservation of the blood throughout the disease. A blood-examination made June 8th, nearly a month after the hemorrhages of early May, showed hemoglobin, 40 per cent; w. b. c., 23,000; r. b. c., 2,400,000; p. m. n., 55 per cent; lym., 27.5 per cent; eos., 10 per cent; mast, 7.5 per cent, and 92 normoblasts. The red cells were very pale, and presented a picture of extreme poikilocytosis and diversity in shape.

Even in the very face of dissolution, so evidently close at hand, there was a last characteristically anemia-like rally, and the patient for the final two weeks felt strong enough to sit up for a couple of hours daily in the living-room and interest herself in the various happenings of the household. But on the evening of July 4, 1914, after an especially good day, she had, without a moment's warning, a copious emesis of fluid blood, which was repeated many times until she sank into a state of semiconsciousness, from which she did not rally, dying on the morning of July 6th, two years and three months after the recognition of the disease, and two years

and one month after operation. The total duration of the disease in this case was probably somewhat over three years.

An autopsy was performed shortly after death by Dr. E. T. Bell, of the Pathological Department of the University of Minnesota, who has kindly consented to present a report of his findings.

An analysis of the foregoing clinical history presents several features that are perhaps worthy of special brief mention:

First. There is nothing in the history of the patient suggestive of the etiology of the disease.

Second. As frequently happens in these cases, there was a marked leucocytosis soon after operation, which in this case persisted and increased to the end. Leucocytosis is not a feature of splenic anemia without operation. Leucopenia is rather to be expected. The average number of white cells in eight counts before operation was 4,925; the lowest, 2,700; highest, 6,500. The average of twelve counts after operation was 15,985; lowest, 9,000; highest, 25,000.

Third. There was throughout a rather unusually high hemoglobin percentage, the general average being 62 per cent. The average color index was 8; highest, omitting one of 2.2 and one of 1.4 occurring soon after sharp hemorrhages, was 1; lowest, .6.

Fourth. A notable irregularity in the shape and size of the red cells was always present, and during the last year became very pronounced. Authors generally state that this condition of the red cells is rare or uncommon in splenic anemia. Eight of Giffin's cases are marked plus under poikilocytosis, the present case being the only one marked double plus.

Fifth. Gastric and intestinal hemorrhages occurred only after the removal of the spleen. It has been stated that "in most cases the hemorrhage is due to mechanical causes related to the enlarged spleen."<sup>5</sup>

Sixth. There was no jaundice or pigmentation of the skin even during the Banti's stage.

Seventh. There were several periods of improvement, two especially prolonged and pronounced, suggesting recovery; but there was no corresponding improvement in the condition of the blood.

Eighth. Splenectomy, even though done early, did not, contrary to the usual experience in these cases, arrest the disease or modify its course in any way. The clinical diagnosis of

uncomplicated splenic anemia was apparently confirmed by the autopsy, as Dr. Bell's report shows. The only other important pathological condition was a moderate grade of parenchymatous nephritis; but this did not seem sufficient to account for the death of the patient, and, moreover, the progress of the case to the very end was like that of splenic anemia, not nephritis.

Giffin's analysis of the eighteen cases of splenic anemia operated on at the Mayo clinic up to the date of the publication of his paper (June, 1913), shows a very satisfactory post-operative history record. Twelve cases out of the eighteen are reported as well, though in several instances hardly enough time had developed to establish a safe status. Four of these cured cases had advanced to the stage of Banti's disease.

Osler, in the last edition of his "Principles and Practice of Medicine," 1912, after giving statistics favorable to operation says, "The fact that removal of the spleen is followed by complete recovery, even after the appearance of the jaundice and chronic anemia, is the best proof that the source of the trouble is in the organ itself, and is one of the best warrants for the recognition of the disease as a separate clinical entity."

The case here presented either furnishes an unusual instance of a splenic anemia, the course of which was not arrested or modified by the removal of the spleen, now generally considered to be the source of the systemic intoxication, or else the diagnosis was incorrect, and the case was really an atypical anemia possessed of the virulency, if not the characteristic syndrome, of a pernicious anemia.

#### SUMMARY OF AUTOPSY MADE BY DR. E. T. BELL, UNIVERSITY OF MINNESOTA

The body is well-developed, but poorly nourished. The skin is very pale, the mucous membrane of the mouth being almost white. There is no jaundice. There is a linear scar extending from the left hypochondrium to the left iliac region.

The peritoneal cavity contains about four liters of thin, clear fluid. The spleen is absent. The omentum is adherent to the anterior abdominal wall along the line of the old scar. The abdominal lymph-nodes are all small and firm. The intestinal surfaces are smooth and glistening.

The pleural cavities each contain about 150 c.c. of thin, clear fluid. A few old fibrous adhesions are present in each cavity. No pathological conditions are found in the heart or lungs.

The stomach contains about 500 c.c. of thick bloody fluid containing a number of blood clots. A similar bloody fluid is found in the small intestine as far as a point about three feet from the ileocecal valve. The mucosa of the stomach, duodenum, and upper part of



the jejunum is deeply congested, but no ulcers or other lesions are found.

The liver is of a pale, yellowish-brown color. It cuts with slightly increased resistance, but no other gross evidence of cirrhosis is detected. The adrenals show no gross lesions.

The kidneys show somewhat roughened surfaces after removal of the capsules. The cut surfaces are pale, but show no special markings.

The uterus is very small, but otherwise normal. No pathological changes are found in the tubes, ovaries, or bladder.

The aorta shows a moderate amount of atherosclerosis.

The bone-marrow of the middle part of the shaft of the right femur was examined. It is of deep-red color throughout. No yellow marrow is present.

*Microscopic Examination.*—The liver shows rather extensive fatty metamorphosis, and a considerable increase of portal connective tissue. These changes are uniform in the sections examined.

The kidneys show patches of connective tissue, with atrophic tubules, near the capsule. The tubules are filled with albuminous material.

The spleen has been described by Dr. L. B. Wilson in his article on the "Pathology of Splenomegaly," which is quoted above. Dr. Wilson has kindly furnished me with material for microscopic study. My findings agree entirely with his.

*Diagnoses.*—Chronic diffuse splenitis, moderate cirrhosis of liver, ascites, double hydrothorax, extensive hemorrhage into the stomach and small intestine, hyperplasia of bone-marrow, extreme anemia, parenchymatous degeneration of kidneys, and old pleuritic adhesions.

These findings make a fairly complete picture of Banti's disease.

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#### DISCUSSION

DR. S. MARX WHITE (Minneapolis): The subject that Dr. Roberts has brought up by the presentation of this case, is an extremely important one, because splenectomy has been extended to certain other possible related conditions. In the disease under discussion we have, according to the descriptions in various reports that have been presented, somewhat different conditions in the spleen in different cases. In some cases there is predominantly a lymphoid hyperplasia; in other cases there has been a very marked endothelial overgrowth, and this is the type of case that was described by Gaucher as epithelial hyperplasia, and finally the type, of which this latter case is an illustration, in which there is more diffuse hyperplasia of all the spleen substance with fibrosis. One might think at first such variable changes as that could not be due to a single cause; and it is entirely possible that we are dealing with more than one cause, but, I think, Dr. Wilson of

No.	Date	Hbg.	R. B. C.	C. Ind.	W. B. C.	P. M. N.	S. L.	L. L.	Trans.	Eos.	Mast.	Myel.	Unk.	Norm.	Meg.	Polk.	Anis.	
1	1912 April 11	60	3,600,000	9	6,500	58.5	36.	9	3	3	2		3	1	1	+++++	+++++	Polychromatophilia
2	April 17	60	3,800,000	8	5,100	58.	36.			4	1.2			2	2	+++++	+++++	Polychromatophilia
3	May 12	55	3,460,000	6	3,200	63.	27.			3	7.							
4	May 13	55	4,000,000	8	5,500													
5	May 23	55	3,200,000	8	6,000	60	38			5	5			1	1			
6	June 1	60	3,500,000	9	5,000	78.	13.			3.3	2.5			2				
7	June 3	50	4,200,000	6	5,100													
8	June 5	60	Operation-Splenectomy only															
9	July 5	60	4,320,000	8	15,600	77.7	11.	9		1.7	1.3			1				
10	July 10	60	3,400,000	9	15,000	80	17.5			2.5	1			5		+++++	+++++	
11	July 17	70	3,600,000	1	15,600	70	32			5	5			7				
12	July 24	70	3,600,000	1	15,600	57.5	33.5			6.5	3.5			3				
13	Aug. 14	72	4,200,000	8	10,000	60.	26.	.75		8.	5.							
14	Sept. 24	75	4,400,000	8	9,500													
15	Oct. 14	75	4,266,667	8	14,000	62.	18	3.75	2.	8.6	4	1.1	4	1	1	++	++	Microcytes
16	Dec. 9	60	4,000,000	7.5	12,400	67.	16.	5.		5.	2.	1.	2					
17	Jan. 24	70	4,000,000	9	18,500	59.5	18.5	5.		12.5	2.5	1.5						
18	Mar. 27	60	4,400,000	7	20,000	54.5	26		4.5	10.5	4.5	2 or 3		6	2	++	++	Many platelets
19	June 3	60	3,360,000	2.2	25,000	71.5	17.5		2.	15.	2.	1		15		++	++	2 Hemorrhages, May 30
20	Sept. 9	70	3,800,000	1	24,500	45.	20.5		.6	21.5	6	.4	2 or 3	3		++	++	Polychromatophilia
21	Dec. 28	75	4,400,000	9	21,800	58.5	16.	3.5	3.5	11.5	3.5	2.5		2	43	++	++	Polychromatophilia
22	1914 April 1	70	2,672,000	1.4	22,800	75.	7.5	2.5	.5	8.5	1.5	4.5	2	19		++	++	Polychromatophilia
23	June 8	40	2,400,000	9	23,000	55.	27.5			10.	7.5			92		++	++	Red cells, very pale and misshapen
24	July 4		Several He													+	+	
25	July 6		Died															

NOTE:—Examination records Nos. 7 and 8 were taken from Dr. Giffin's Mayo Clinic Report; examination No. 21 was kindly supplied by Dr. Cross; all the other examinations were made by my office assistant, Miss C. M. Rankellour, who, in the differential estimations, counted 500 cells each time.

the Mayo Clinic states it fairly well when he says in his article on 18 cases in which splenectomy was done, that "from what we know of hyperplasias in other organs it would seem unnecessary to assume hypothetically the presence of three different causes for the production of the three primary histological types of splenic anemia."

I think it is unnecessary to attempt to differentiate splenic anemia and Banti's disease. It is the opinion generally held, I believe, that we are dealing with the same disease, the term splenic anemia being used particularly for those cases in which anemia is prominent, or which have not developed to the point which would correspond with the classical original description of Banti.

The results of the surgical treatment by splenectomy would tend to confirm the idea that Banti originally advanced, that the anemia is due to increased hemolytic action on the part of the spleen, or, at least, that we have in the spleen a very important link in the chain of changes characteristic of the disease producing the anemia and which cause the progress of the disorder. Whether the anemia is due to increased hemolysis, or whether it is due to some special toxin that is formed in the spleen, our present methods of examination of these cases has not as yet determined. It is evident, I think, that we have advanced as far as we can in the study of the disease by autopsy material, and that further advances in our knowledge of it must depend upon the careful study of the freshly removed spleen by biological and other methods.

Rodman and Willard, in a paper, not long ago compared the action of the spleen in this disease to the action of the thyroid in hyperthyroidism, stating that in hyperthyroidism the removal of the thyroid ameliorates the symptoms, and in many instances one can go so far as to say that it cures the disease, particularly when taken early; and the same thing appears to be the case in splenic anemia. The removal of the spleen does distinctly ameliorate the symptoms; it does not cure all cases, but it does produce marked amelioration in the majority of instances.

The favorable results of splenectomy in splenic anemia, or Banti's disease, originally suggested by Banti himself, have led to a trial of the method of splenectomy in certain other diseases, such as leukemia,—a condition rather obscure and rare, so-called hemolytic jaundice; and finally, according to the suggestion of Eppinger of Vienna, splenectomy in pernicious anemia. There is a recent review, rather brief and quite readable, of the results of splenectomy in practically all conditions, by Mühsam in a recent number of the *Berliner klinische Wochenschrift*.

DR. J. G. CROSS (Minneapolis): The case Dr. Roberts reports is a most interesting one. Undoubtedly, it belongs to the general group of splenic anemias, the classification of which is a profitable subject of discussion. The particularly interesting feature of Dr. Roberts' case is the fact that it is not typical, although belonging to this group. Especially to be noted are the facts that the duration was relatively short, that it was not a high grade of anemia, and that removal of the spleen was not apparently followed by the expected benefit. The autopsy, as has been stated, showed a Banti type of splenic anemia more than anything else,

but this was more because of the condition of the spleen than that of the liver.

At the outset we must make a confession of ignorance as to the etiology of this entire group of diseases. In most instances we must acknowledge that we do not know the cause of the trouble. We classify these cases as splenic anemias, principally on clinical findings partially supported by pathology; and yet, if one may be pardoned for so stating it, the most characteristic thing about the pathological findings is their variation. There is no distinct picture in the pathology of splenic anemia. Some, therefore, base the grouping on pathology rather than the clinical course, and we have a still greater variation in the cases coming to autopsy. Banti's disease is almost the only one of the group with a definite pathological picture.

The theoretical consideration of the cause of splenic anemia is quite outside of this discussion, but is a fascinating line of thought. Have we in this group to do with a single cause which reacts differently in different individuals so as to produce one type in one person and another type in another, or are there a number of different causes as yet unrecognized which react upon different individuals to produce similar diseases? Syphilis and tuberculosis complicate the diagnosis of splenic anemia. We have not as yet arrived at a point where we can say that the etiologic factor is splenotoxic or not,—that is, whether the toxemia which causes the disease is elaborated in the spleen as a result of change in its function or whether the changed function of the spleen is a result of a toxic product from some other part of the organism. The cases which have been benefited by removal of the spleen seem to indicate that in these instances at least the toxemia was of splenic origin. Others—and the present case is in point—would not support that view.

Of further interest in Dr. Roberts' case was the fact that there was no pigmentation of the skin and no family influence. There was a relatively high eosinophilia, especially just before death.

As theoretical discussions would lead us too far afield, and we are as yet very much in the dark as to this entire group, the classification of splenic anemias shows very well what Dr. Stengel said of the epochs of diagnosis in his address, namely, that at a certain stage we are dominated by the pathology of disease rather than by the clinical and etiological features. We are in that stage as regards the splenic anemias, and still the pathology does not suffice entirely, although it leads us nearer to a classification.

Of practical importance is the question of removal of the spleen. At the present time we know that some cases are benefited and some are not, but we have no criterion which will tell in advance whether splenectomy is going to do the patient good. I hope that we may have a surgical discussion of the subject which will elucidate this point for the clinician.

DR. WILLIAM J. MAYO (Rochester): The one thing that confronts us all in connection with splenectomy is, that the conditions for which we operate are essentially symptomatic; that is, we have certain conditions of the blood that are more or less characteristic associated with an enlarged spleen. Eppinger now leads us still further, in that he no longer waits for the sign of an enlarged spleen, but removes the spleen without

regard to size for certain blood conditions, such as pernicious anemia.

The spleen is an exceedingly interesting organ if it is looked upon from the embryological standpoint. For instance, we know the association of the spleen with the blood-picture, and the blood side of the spleen is thus brought into greater prominence than its digestive relations. The spleen is closely associated with the liver. It has the same blood supply from the celiac axis; but that it is unable to do all its work is shown by the fact that the splenic vein is not an independent vein back to the general circulation, but joins with the portal circulation to the liver, and in this way we have a close connection between the liver and the spleen; that is, whatever the spleen takes out of the blood must be passed through the liver before it is properly elaborated. We see this in connection, reversely, with cirrhosis of the liver, in which we have an enlarged spleen associated with it. In a number of cases reported in the German literature, as well as in some of the cases reported in this country, such an enlarged spleen has been removed in the course of cirrhosis of the liver, but it is too early to say what the results will be.

The spleen removes from the blood microorganisms, such as the plasmodium of malaria and the typhoid bacilli; and if it fails to deliver these parasites to the liver for destruction we have the ague cake or enlarged spleen of malaria or a typhoid abscess of the liver. We have had several such cases. It is a failure on the part of the spleen to rid itself of something which it has removed from the circulation and is unable to pass to the liver to be sterilized, which lies behind many splenomegalias. Whatever function the spleen has, it is in some way connected with the removal, not only of living organisms, but also of toxic products; and these are sent into the liver for further elaboration, and possibly these toxic products have to do with secondary or primary hepatic cirrhosis.

If we go back still further, the most interesting thing we find is that the primitive blood is white and that all animals that have but one type of blood have white cells. This is true of the early human embryo, the

red cells appearing later. The red blood, therefore, is a descendant of the white blood. We can find animals whose normal blood represents the various conditions we speak of as anemias in the human; that is, different kinds of anemias are many times the normal condition in some of the lower animals.

I think we can easily say that leukemia represents a cancer of the blood. We have, for instance, in ordinary carcinoma, production unlimited and without function of embryonic epithelial cells. We call a tumor sarcoma where it has developed unlimited embryonic connective-tissue cells, and so we have a leukemia,—a reversion to prenatal condition in the uncalled-for production of the embryonic white cells of the blood; and we find all of the primitive blood-forming organs,—spleen, liver, bone-marrow and glandular and adenoid tissues of the body,—producing these white cells, which demonstrates why removal of the spleen in leukemia does no good. It is only one part of the process.

Personally, if I had pernicious anemia I would have my spleen out, although the percentage of cases of pernicious anemia that would be cured in this is probably small. However, in the few cases we have operated on, the removal of the spleen has done good, but not sufficient time has elapsed for us to say to what extent it is beneficial. We know what a hopeless picture this disease presents, and we believe there is sufficient evidence to warrant the removal of the spleen in many instances, as the operation is not so serious as we have been previously led to believe. Of course, after changes have appeared in the spinal cord not much can be expected. According to statistics, based on early splenectomy, the mortality has been taken to be as high as 25 to 40 per cent; today the mortality from the removal of the spleen is very small (5 per cent), and we know it is not an organ essential to life. The operation, as I have said, has had a beneficial effect in some of the cases of pernicious anemia on which we have operated. None of these patients has died from the operation; and it is worthy of further trial. In splenic anemia splenectomy has great merit.

## A PLEA FOR CONSERVATISM IN NASAL AND TONSILLAR OPERATIONS\*

By CORNELIUS WILLIAMS, M. D.

ST. PAUL

It is the fashion today to operate, almost without discrimination, on what are called "adenoids and tonsils." The aforesaid adenoid tissue is, in reality, nothing more than hypertrophy of the normal mucous membrane. This hypertrophy of the mucous membrane is almost entirely peculiar to young children, and has for its cause of origin, very frequently, a want of development of the bones of the face, and particularly the bones which grow and make up the roof of the hard palate and the epipharyngeal space. The mucous

membrane develops with greater rapidity than the bony structures; and, in consequence, there is a massing of hypertrophied lymph-glands, which normally exist in the epipharyngeal space. This hypertrophy may extend forward even to the mouths of the Eustachian tubes. Slowness of development of the bones of the face in the beginning produces the adenoid formation, and the adenoid formation in turn, together with the slowness of development, contributes to the lack of growth, both of the bones of the face and of the skeleton in general. Now, then, the exanth-

\*Read before the Minnesota Academy of Medicine, May, 1915.



matous diseases are known to be also another frequent exciting cause of adenoids; and it is the lack of proper treatment of the nasal mucous membrane at that period which determines the formation of adenoids and the subsequent accidents of growth in the child.

I will not weary you with detail, but proceed to an examination of the problem as presented to the surgeon. A retrospective glance is, however, in order. The period during which extraordinary activity has been displayed in the operative treatment of hypertrophied mucous membrane dates back not more than twenty-five years. Before this time children were born into the world, and grew to man's and woman's state, and escaped the various mutilating operations that are now almost universally the fate of a child who, for any cause, has difficulty in breathing, due either to nasal obstructions or tonsillar enlargement. Statistics show that the percentage of suppurative or general catarrhal conditions of the middle ear was not greater twenty-five years ago than today. Indeed, very many cases of suppurative middle-ear disease have been directly provoked by meddlesome operations in the epipharyngeal region, or upon the turbinate bones of the nose, to say nothing of tonsillar attacks by the surgeon. Very few persons reach adult life without some deformity of the nasal bones; but, in the very large majority of cases, there is ample space for breathing, even though the nasal passages may not be entirely straight. It has even been claimed that too straight a nasal passage is not entirely a good thing for its possessor, because of a more direct channel of entrance to the lungs for deleterious substances in the air. Deflections of the nasal septum are the rule, and a perfectly straight septum the exception. The tonsil is a structure situated in the sinus tonsillar between the faucial pillars, and has its origin in an invagination of the hypoblast. It is made up largely of lymphoid tissue, mucous membrane, together with trabecular tissue; and while the function of the tonsil is obscure, reasoning from analogy, the tonsils have some influence upon the economy, and it has been suggested that the tonsil has an internal secretion like that produced by the suprarenal gland. Experiments with tonsillar extract have seemed to prove this, and some have supposed that the loss of this secretion, while it may not be felt in the immediate subject, will become evident in succeeding generations, and that eventually the tonsil will disappear, and that, after such disappearance, other injurious changes will take place in the neighborhood. The

fanciful theory has also been exploited that the function of speaking, singing, and swallowing will be very much modified, and deleteriously. Be that as it may, it is a well-known fact that removal of the entire tonsil today does greatly modify the singing voice, and the speaking voice, as well. The resonance of the pharyngeal vault is much impaired, and the individual suffers a loss of timbre. Again, returning to the epipharyngeal space, the violent removal of so-called adenoids is by no means devoid of danger. Richard A. Faulkner, of Columbia University, says that the removal of "adenoids" is followed by the most appalling list of accidents of any operation in history; and he is supported by such men as Grönbeck, Tilley, Castex, Coley, Browne, Wingrave, Riviere, Hagedorn, Broeckhaert, Holmes, Lunin, Hermann, Mygind, Thurley, Quinlan, Hope, Citcelli, Hennebert, Chappell, Weber, Woeblews, Bulso, Urban, Cline, Kan, Thomas, Ryan, Wilkinson, Nettlebrock, Avale, Henking, Henkes, Cunningham, Chapman, and others. Among the fatal accidents there are death from hemorrhage, immediate or secondary, recurrent hemorrhage, asphyxia, mental disturbance, laceration of the lining of the membrane of the post-nasal cavity, injury of the nasal septum, recurrent nasal hemorrhages, permanent derangement of blood-circulation in the nose, permanent redness of the nose, injury of the uvula, paralysis of the velum of the palate, injury of the Eustachian tubes, acute inflammation of the post-nasal region, inflammation of the nasal lining membrane, infection of the wound, abscess, diphtheria of the wound, blood poisoning, scarlet rash, cerebral meningitis, arthritis, tonsillitis, laryngitis, inflammation of Eustachian tubes, ear disease, mastoid disease, rupture of ear drums, running ears, earache, deafness, inflammation of the eyes, disturbance of vision, alteration and impairment of the voice, removal of the first important line of defense against germ infection, awakening of latent diseases, development of latent tuberculosis in adjacent glands and in the lungs, neuralgia, headache, vertigo, syncope, general nervousness, spasm of the larynx, asthma, goiter, and a great many other infections.

It is denied that it is possible entirely to remove the so-called adenoid tissue; and this is perhaps fortunate, because an entire removal would mean the substitution of scar tissue for the entire normal mucous membrane. This statement is made by Grober of Vienna, Von Levinstein of Berlin, Goerke and Brieger of Breslau, Marage of Paris, and others. Again, adenoids return af-

ter they have been removed; and it must not be forgotten that adenoids disappear spontaneously. This fact, although many authorities are quoted in the affirmative, is so well known that we will not dwell upon it. While very many persons engaged in the educational departments of various cities, from New York to Minneapolis, have constructed tables of the number of the pupils examined for enlarged tonsils and for adenoids, it was found that out of 476,690 pupils there were 50,049 who had adenoids, and 85,003 who had enlarged tonsils. The literature concerning tonsillar and adenoid operations is so extensive and so contradictory that one must form his own conclusions, after reading largely upon these matters. Every man who pays some attention to diseases of the ear, nose, and throat has met with many cases of serious results from adenoid and tonsillar operations. I have at this time under my care a boy of 7 who was operated on for tonsils and adenoids four years ago. There is the history of an abscess and a delayed convalescence. The significant feature of this case is, that he has not gained a pound since that operation, that he has not grown a quarter of an inch in stature, and that he still has the face of a child of three or four years. I treated him for a while by stretching the jaws, which gave him a little more breathing space; and for the time being he did gain two pounds, but lost it again after the treatment had been discontinued.

One serious effect of operations for adenoids is fracture of the delicate sieve-like bone which forms the roof of the ephipharynx. Much injury may be inflicted where no actual fracture occurs. Those who do mastoid surgery are familiar with this form of intracranial complication, edema of adjacent cerebral tissue; and it is most reasonable to suppose that some such lesion as this was present in the case of the boy mentioned. Some of the latest authorities,—namely, Delafield, Prudden, Adami, and others,—maintain that normal adenoid tissues should always be preserved, if possible, and that these adenoid bodies of all sizes, whether called nodes, nodules, or tonsils, are filters. Brieger, Goerke, Fränkel, Metschnikoff, and others claim that adenoids protect the human system against the infection of germs, while Grober, Excatt, Goerke, Mackenzie, von Levinstein, and others assert that they cannot be completely removed by a surgical operation. It is also admitted that they will grow again, while everybody knows that they do disappear of themselves. Then, in addition to the long list of reasons why they should not be

surgically treated, is the undeniable fact that operations upon the nose and tonsils, under the best possible surgical procedure, are very dangerous. We must admit that the greater number of such operations are probably done when there is really no indication for interference, and by men who are not best fitted for the operation. In a casual survey of the interior of the nose and of the throat one is struck by the analogy between this region and the mastoid region. It is very well known that disease in mastoids devoid of, or sparsely provided with, cells proceeds rapidly toward the brain. Operations upon the septum narium are now very fashionable; and in proportion to the number of operations done the reported number of cases of serious accidents is very large. The number of unreported cases of lethal accidents is undoubtedly larger.

Now, the argument of this paper is, that tonsillar and intranasal operations of all sorts should be done only by very experienced men, and in emergencies, but as of routine, never. Over thirty years ago I did the first operation for deflected septum ever done in the Ophthalmic and Aural Institute in New York, while I was one of the staff of surgeons there. The operation consisted in crushing the deflected septum with forceps into an upright position, and so holding it by means of gutta-percha splints, perforated for the purpose of cleansing. These splints were worn for a week or ten days, and the nose was irrigated daily. The result was most excellent. It would have been better if the gold pin which I had ordered for the operation had arrived on time. It was planned to put this pin through, and to transfix the nose, as done in harelip operations, with silk thread passing over each end of the pin in a figure-of-8 form; and I still believe that this operation is the best one for deflection of the nasal septum. When I came to St. Paul in 1882 I brought a number of these splints with me, and showed them to Dr. Chas. A. Wheaton, who had a number made for his own use, and they are still to be found in his office.

In the way of medical and surgical treatment for the so-called adenoid formation I very strongly recommend stretching of both the upper and the lower jaw, and application of medicines in the form of sprays, to the diseased mucous membrane; and I particularly advise the use of iodine in weak solution, nitrate of silver, sulphate of copper, and sulphate of zinc. The nascent iodine is applied in this manner: A solution of iodide of potash of from  $\frac{1}{2}$  to 1 grain to the ounce is sprayed so as to thoroughly cover the diseased

tissue. This spraying is immediately followed by a spray of a mild solution of hydrogen peroxide. This is one of the best remedies that I know of, because this nascent iodine sinks into and saturates the hypertrophied mucous membrane. For the tonsillar enlargement I believe the application of the tincture of iodine to the surface of the tonsil, with expression of the cryptic contents, and massage will effect reduction in nine out of ten cases. Some cases are gone so far, of course, that a condition of keratosis is brought about, which prevents entire reduction of the hypertrophy. In such cases, and, indeed, in many cases, I believe that the application of the Bier process of suction, with expression of the cryptic contents, and application of sulphate of zinc or iodine will produce the most excellent results. To effect thorough cleansing of the nose in young children there is nothing better than the blast of compressed air. Taking the head of the child between the knees, pass the blunt nostril tip attached to the tube into one nostril at a time. The child under this manipulation will always cry, and this prevents the air from passing the velum palati. This form of treatment is also good for grown people, because there are few of them that know how to blow their noses. Instead of resection of the turbinates and of the septum the better operation would be the crushing of the septum into an upright position with the fixation of the septum in that position by means of gutta-percha splints, and, if necessary, a pin passed through the nose from side to side and through fenestra in the splint. This straightening of the septum remedies the malposition of the turbi-

nate bones, and sufficiently straightens the nasal breathing canal. If, however, in case of serious disease of the sphenoidal sinuses, it may be necessary to make more room and to simplify an operative procedure, then the turbinate should be the subject of a submucous resection, and never an amputation. Amputations of the turbinate bones almost always leave scar tissue, which does not heal over, with the result that for years and years thereafter crusts form upon this raw surface, and are very annoying, and may in time give rise to malignant disease. The splints spoken of are made of gutta-percha, and are shaped like an ordinary ear speculum, fenestrated in every direction, and may be molded by heating in hot water to any shape desired.

Since writing the above I have before me the proceedings of the Section on Laryngology and Rhinology of the New York Academy of Medicine, which gives an account of two cases of nasal deformity resulting from the submucous resection of the septum presented by Dr. Westley Carter. In neither case had there been syphilis or any constitutional disease. The operation was performed one and one-half years ago, and was followed by suppuration in neither case. Both patients were operated upon by men of recognized ability. In both cases almost immediately after the operation the cartilaginous dorsum of the nose dropped in with much resulting deformity. The discussion brought out the fact that such cases were being presented more and more frequently as the frequency of this operation increases.

## SOME REMARKS ON THE PATHOLOGY OF PERNICIOUS ANEMIA, WITH DEMONSTRATION OF SLIDES\*

By M. BARRON, M. D.

ST. PAUL.

I recently had the good fortune of studying the blood-picture in a case of pernicious anemia on which splenectomy was performed. The blood-studies were made both before and after operation. Blood-examination up to five weeks before operation showed hemoglobin about 35%: red-blood cells, 2,000,000; hemoglobin index, about 1; white-blood cells 3,500; very marked anisocytosis; slight poikilocytosis; polychromatophilia and granular degeneration; practically

no normoblasts, no megaloblasts; no "Howell-Jolly" bodies.

The patient's condition grew progressively worse under medical treatment, and splenectomy was performed. The hemoglobin, which was around 25% at the time of operation, rose gradually until it reached 48% fifteen weeks later. The red-blood cells rose from 1,300,000 to 1,900,000. The leucocyte count soon rose to normal, and remained about normal. The shape and size of the red cells gradually improved; polychromatophilia and granular degeneration remained about the

\*Abstract of a paper read before the Minnesota Pathological Society, April 20, 1915.



same. Normoblasts increased until at one time there were 1400 per c. mm. A few megaloblasts appeared but later disappeared. The most noticeable and pronounced change, however, was in the appearance of the "Jolly" bodies soon after the splenectomy. These nuclear remnants not only persisted, but increased to enormous numbers, in the blood. Unfortunately a perinephritic abscess developed about three and one-half months after the operation, and this seemed to check the improvement. The patient died about a month later.

All the functions of the spleen are as yet not known. In the above case, at least, the splenectomy seemed to have removed some inhibiting influence on the bone-marrow, thereby allowing the entrance into the blood-stream of unripe (?) red-blood cells still possessing nuclear remnants. It may also have heightened the erythroblastic property of the bone-marrow, as well as removed hemolysis. Dudley Morris found an increase in leucocytes, especially of the mononuclears, and of the red-blood cells in the blood examined from the vein as compared with that of the artery of the spleen. Michailoff, in experimenting on animals, found that, after producing pernicious

anemia artificially, the injection of splenic extract would bring the blood back to normal. He treated three human cases of pernicious anemia with splenic extract, and obtained marvelous results.

Alfred De Costello does not altogether agree with Eppinger's hypothesis. In pernicious anemia the spleen is certainly at fault, but is, as Türck claims, only one link in a chain of factors causing the disease. Among the other organs involved are probably the bone-marrow, liver, lymph-nodes, and kidneys.

Extirpation of the spleen results in remission, but not in cure. De Costello's first case of splenectomy for pernicious anemia, which was apparently cured, was followed by the recurrence of the disease.

Microscopic examination of spleens in pernicious anemia shows, as Eppinger claims, a thickening and hyaline degeneration of the walls of the central follicular arteries. A similar condition, however, is found in a large percentage of spleens obtained at autopsies in cases other than pernicious anemia. This would indicate that this histologic picture is probably not pathognomonic of the disease.

## DEEP ROCK

BY EUGENE FIELD

A fell'r may live till he reckins he knows p'etty much  
all wuth knowin';  
But the longer he lives the more he finds that the world  
keeps on a-goin'.  
Last week I went down to York State to visit my  
marr'd daughter,  
An' ther I met up with a newfangled trick 'at folks  
calls mineral water.

Wasn't a-feelin' none too peart; sperrits was kind er  
droopin',  
Reckin' a pint er tansy gin u'd er fetched me round  
a-whoopin';  
But Lizzie allowed when folks were sick along in the  
spring they'd orter  
Doctor their livers with that 'ere stuff 'at folks calls  
mineral water.

Harnsome liquor as ever flow'd, an' clear as the Miami  
River,  
But stronger 'n a yoke er speckled steers when it  
tackles a fell'rs liver.  
Took one swig on 't,—thess f'r fun,—then fer a day  
'nd a quarter  
Didn't do much but loaf around tendin' that mineral  
water.

Made all the home folks madder'n fire, specially Daugh-  
ter Lizzie;  
Didn't hev time fer visitin' 'em—water kep' keepin'  
me busy.  
Of all the—say, ef you're feelin' sick or under the  
weather sorter,  
Jest sen' to town f'r a bottle or two of that nice, smooth  
mineral water.

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## A SPICY, INFORMING PAPER

The "Indian Medical Service," which is the subject of Dr. Rice's paper in this issue, is not a very attractive title; but Dr. Rice has much to say that is very attractive to men who are interested in the way our Indian wards are dealt with by the United States Government.

Dr. Rice seems to have no fear that he will be disciplined or that his statements will be disproved. If the Government does not undertake one or the other, or discipline some one in Washington the people of the Northwest, if not of the entire nation, should enter upon a course of "watchful waiting" until the polls open.

It is worth while to read Dr. Rice's paper.

## TREATMENT OF EXOPHTHALMIC GOITER

There seems to be a good deal of hesitancy of late in the radical surgical treatment of exophthalmic goiter. It would be interesting to know, if it were possible, the effects produced upon patients who have been previously operated on. So far as statistics show, the death-rate has been kept down within reasonable limits; so far as facts are known, the death-rate is unknown.

Evidently, one reason for the hesitancy in re-

moving an enlarged and active gland is the unsatisfactory after-result; and many of the surgeons are now simply tying the superior thyroid artery, waiting a few months, and then tying other arteries, leaving the bulk of the gland intact. Then, too, there is the fear that there may be a re-growth of the gland that is left in the neck, just as there are recurrences of the common adenomatous type of goiter after removal.

It is safe to say that medical treatment is of the utmost importance before surgery is resorted to; and, so far as our experience goes, rest and proper foods are the essentials. Mild hydrotherapy is also indicated, and it is not infrequently necessary to try some of the iodine preparations. Thyroidin, or thyroidectine, and sometimes the common extract of the thyroid, in tablet form, is used with very satisfactory results. The dose of the former should be given in from one-half to one grain doses only. It is not wise to increase even the common thyroid tablet up to its physiological effects. Professor Forchheimer gives, three or four times daily, a five-grain dose of quinine hydrobromide, together with a grain of ergotin. This method is a harmless one, and Forchheimer claims that many of the cases respond magically to these drugs. This is a re-establishment of the old quinine treatment in which five to twenty-five grains of quinine sulphate were given daily.

The sheet-anchor of the treatment, however, lies in a rest and relief from irritating surroundings. It is unlikely that we shall ever know how many cases of exophthalmic goiter treated surgically are really or decidedly benefited by the surgical procedure.

Hence the warning that all cases of exophthalmic goiter should be given an opportunity to improve or recover under a physician, and only referred to the surgeon when the case demands surgical interference.

## THE NEEDS OF THE MINNESOTA STATE BOARD OF HEALTH

Dr. Carroll Fox, Surgeon of the United States Public Health Service, after investigating the condition of sanitation in Minnesota, closed his report with certain recommendations, the last recommendation reading as follows:

That not less than \$270,000 be appropriated to the State Department of Health to be allotted by the State Board as may be necessary for the following purposes:

General .....	\$20,500
Preventable diseases .....	25,000

Special tuberculosis .....	17,000
Laboratory (relating to preventable diseases) ..	28,000
Pasteur Institute .....	10,000
Free antitoxin .....	10,000
Vital statistics .....	10,000
Child welfare and school hygiene .....	10,000
Control of water and sewage .....	30,000
Industrial hygiene .....	10,000
District health organization .....	100,000
Total .....	\$270,500

Following this suggestion of Dr. Fox, the State Board of Health presented its request for this amount, adding, however, \$3,700 to the appropriation asked for vital statistics because of the fact that this department was behind in its work.

Economy being the watchword of this Legislature, it was recognized that it would be impossible for the Legislature to give as much as suggested by Dr. Fox; but it was rather conceded by the Committee on Appropriations in the House that all of the amounts asked were reasonable, except possibly the last, and it was suggested by the Board that if the Legislature would give \$10,000 for this district health organization, the work might be tried out in two districts.

The Committee having considered this for a time, representatives of the State Board of Health were again called in conference. In this last conference the House Committee agreed to recommend the following for public health service during the next two years:

(House File No. 1161, Section 19.)

1. For maintenance .....	\$14,500
2. For maintenance, immediately available....	13,000
3. For recording vital statistics.....	10,000
4. For recording vital statistics, immediately available .....	2,500
5. For dealing with preventable diseases.....	25,000
6. For special tuberculosis work.....	15,000
7. For expense of maintenance of laboratory	20,000
8. For providing free antitoxin.....	5,000
9. For conducting Pasteur Institute.....	7,000
10. For sanitary-engineering work.....	7,000
Total .....	\$119,000

This, while disappointing, was recognized by the representatives of the Board as probably all that could be expected this year. In this final agreement, the appropriations suggested for child welfare and school hygiene, industrial hygiene, and district-health organization were left out entirely. All three of these are most important in public-health work, yet the Board would have been well satisfied if the recommendations of the Appropriation Committee of the House had gone

through, for it would have been a long step in the right direction.

Normally, after such questions as these have been thoroughly considered by the Committee on Appropriations, its recommendations are accepted. During the last meeting of the Legislature, however, when the departmental appropriation bill came up before the House, Mr. Guilford moved that sub-division 3 of section 19, House File 1161, be amended by striking out the words and figures ten thousand dollars (\$10,000) and substituting in place thereof \$5,000. This motion prevailed. It was for the vital-statistics appropriation.

Mr. Guilford further moved that subdivision 5 be amended by striking out the words and figures twenty-five thousand dollars (\$25,000) and substituting in place thereof \$15,000. This motion also prevailed. It related to the appropriation for the handling of preventable diseases throughout the state.

Mr. Guilford then moved that subdivision 6 be amended by striking out the words and figures fifteen thousand dollars (\$15,000) and substituting in place thereof \$10,000. This motion was lost. It related to the appropriation for special tuberculosis work throughout the state by the State Board of Health.

Mr. Adams moved to amend House File 1161 by striking out the figures \$13,000 and inserting \$7,500, in paragraph 2, section 19. This motion was lost. It related to the emergency appropriation needed by the State Board of Health to continue its regular work to August 1, 1915.

Mr. Adams, on the floor of the House, in discussing the appropriation for vital statistics said that if any part of the appropriation was for printing a lot of figures, he was opposed to it. He should have known that money appropriated for vital statistics would not go to the payment of bills for printing, as the printing of vital statistics is done out of the fund appropriated by the Legislature for state printing.

The Blue Book describes Mr. Paul Willis Guilford as a graduate of the academic and law departments of the University of Minnesota, engaged in the practice of law and taking an "active interest in public matters in Minneapolis." He is a brother of the acting Commissioner of Health of Minneapolis.

The Blue Book describes Mr. Elmer E. Adams, of Fergus Falls, as a graduate of the University of Minnesota, and one actively interested in the up-build of his home city. He was at one time a regent of the University of Minnesota. He



has served in the Legislature during the sessions of 1905, 1907, 1909, and 1915.

The Finance Committee of the Senate is largely responsible for the final action of the Legislature relative to appropriations for public health. The amounts passed by the Legislature for public-health work are as follows:

General .....	\$14,500
Vital statistics .....	5,000
Preventable diseases .....	15,000
Laboratory .....	20,000
Antitoxin .....	5,000
Pasteur Institute .....	7,000
Sanitary engineering .....	7,000
Maintenance, available present fiscal year.....	8,000
Total .....	\$81,500

## MISCELLANY

### RESOLUTIONS OF RESPECT IN MEMORY OF DR. CHARLES H. BRADLEY

BY THE MEDICAL STAFF OF THE MINNEAPOLIS CITY HOSPITAL

WHEREAS, our colleague, Dr. Chas. H. Bradley, has been called by death, and

WHEREAS, he has been for many years a member of the Staff of this City Hospital, and

WHEREAS, he has always most cheerfully and enthusiastically and unselfishly given of his time and skill and energy to the care of its patients, and

WHEREAS, by his removal by death, the members of the Staff have lost a valued friend and a wise and efficient counsellor,

RESOLVED, therefore, that we hereby record our regret and sorrow in the loss of a good friend and a learned and scientific colleague, and

That we extend our deepest sympathy to his bereaved family, and

RESOLVED, That a copy of these resolutions be transmitted to his family, and that copies also be published in the Minneapolis daily papers and in THE JOURNAL-LANCET, and spread upon the minutes of the Staff.

(Signed)

THE VISITING STAFF OF THE MINNEAPOLIS CITY HOSPITAL.

## BOOK NOTICES

GENERAL SURGERY. John B. Murphy, M. D., Editor. Practical Medical Series, Vol. ii; price, \$2.00. Chicago: The Year Book Publishers.

For the last few years it has been the reviewer's privilege, and pleasure, to review the annual volume on surgery of this series. He finds that he can only reiterate that which he has often said, namely, to one desiring to obtain information, briefly, upon the best

and most recent advances in surgery during the preceding year, there is nothing known to the reviewer which better fulfills the purpose than the volume under discussion.

Although this year's volume shows a decrease in the usual number of reviews of foreign literature, due of course to the present war, it is up to the standard, and, as usual, covers briefly the important chapters of the whole extensive field of surgery.

Among the subjects receiving the most attention in this volume are those of the stomach and the appendix. Regarding the latter, the editor strongly emphasizes the fact that the mortality following the surgical removal is still too great, being about ten per cent, which he claims is four or five times what it should be.

While the surgery of the different organs of the body is given a good deal of attention, the subjects of anesthesia, radiotherapy, new instruments, operative technic, wound-healing, and tetanus are by no means neglected.

—ROBITSHEK.

## NEWS ITEMS

Dr. R. W. Whittier has moved from Mora to Morton.

Dr. R. W. Huffman, of Chatfield, has moved to Stewartville.

The Deaconess' Hospital at Grafton, N. D., is to be enlarged.

Dr. E. W. Gaag, of Browerville, has moved to Great Falls, Mont.

Dr. D. H. Bell, of Kenmare, N. D., expects to move to Tacoma, Wash.

Dr. W. A. Lee, of Underwood, is spending several weeks in Chicago.

Dr. Robert Mayos has been appointed assistant city physician of Minneapolis.

Dr. W. H. Drury, of Pepin, has sold his practice to Dr. H. V. King, of Millville.

Dr. J. W. Moreland, of Maxbass, N. D., is taking a postgraduate course in Chicago.

Dr. O. J. Pederson, of Chicago, is the new assistant physician at the Coleraine Hospital.

Twelve thousand five hundred dollars has been pledged for the proposed hospital at Lake City.

Dr. J. W. Powell, of Webster, S. D., is taking a four weeks' postgraduate course in New York City.

The regular meetings of the Hennepin County Medical Society will be resumed the 6th of September.

Dr. Thorvald Peterson, of Gaylord, has accepted a position in the Minneapolis Swedish Hospital.

Dr. J. P. Rosenwald has sold his practice in Mankato with the intention of taking up postgraduate work.

Dr. Sam Chernausek has returned to Dickinson, N. D., after spending a year in postgraduate study in Chicago.

Dr. Robert A. Hall has been elected a member of the Executive Board of the Medical School of the University of Minnesota.

Dr. M. O. Oppegaard, of New London, has recently returned from Chicago, where he spent several weeks in postgraduate study.

Dr. Ethan Flagg Butler, of Rochester, has returned from Serbia, where he has been for the past year with one of the American Red Cross units.

Dr. D. N. Jones, of the staff of the Eitel Hospital, Minneapolis, is to be in the East for a month, visiting clinics and hospitals.

Dr. E. W. Buckley, of St. Paul, was re-elected for the fifth term as supreme physician of the Knights of Columbus at the last annual convention of the society.

Dr. E. M. Lundholm, chief surgeon at the Bethseda Hospital, St. Paul, for twenty-four years, died last week of pneumonia, following an operation for stomach trouble.

At the annual meeting of the Wabasha County Medical Society Dr. D. S. Fleischhauer, of Wabasha, was elected president, and Dr. J. A. Slocomb, of Plainview, secretary.

Dr. R. O. Beard has been elected Assistant Dean of the Medical School of the University. He retains the position of Secretary of the Faculty and Assistant Professor of Physiology.

The University Dispensary will soon be moved from quarters at Washington Avenue to Millard Hall, on the Campus. A fee of ten cents is now charged patients for each visit to the Dispensary. Last month seventy-five per cent of the patients paid the fee.

The following is the full list of physicians who have resigned from the staff of the Medical School of the University of Minnesota: Dr. Charles Lyman Greene, Dr. Geo. Douglas Head, Dr. P. A. Hoff, Dr. A. R. Hall, Dr. J. E. Hynes, Dr. J. S. Gilfillan, and Dr. C. D. Freeman.

A Social Service Department is to be added to the University Hospital and Out-Patient Service of the University Medical School. Two trained social-service workers will be permanently employed, and volunteers will be asked for from

the Medical and Academic Departments. The sanitary condition of the homes of the poor, and the causes of disease and the care of sick therein, will be carefully investigated.

The American Hospital at Paris has invited a number of American medical schools to send each a hospital corps for three months' service with the French army. A corps consists of surgeons, a pathologist, a bacteriologist, and nurses, making about twenty-five in all. The expense will be not less than \$10,000. The University of Minnesota is considering the matter. As the University is a State institution the matter of neutrality is to be considered, and, besides, the money must be raised by voluntary contributions.

THE JOURNAL-LANCET has learned through one of its erroneous statements how thoroughly its new items are read. In our last issue we made a medical doctor of Mr. H. A. Whittaker and put him in charge of the Minneapolis Laboratory of the State Board of Health while he is director of the Division of Sanitation. As a result Mr. Whittaker is receiving requests for laboratory outfits and specimens for diagnosis. This may cause unfortunate delay. Detailed information upon this point is given in an official item in this column.

The summer meeting of the Southern Minnesota Medical Association was held last week at Red Wing, with a good attendance in spite of the bad weather. The delightful social side of the meetings of this society, with its excellent scientific program, gives it a place only second to the State Association, if it is, in fact, not quite equal to it. The Goodhue County Society deserves great praise for good work both on the program of the meeting and for the care of the guests and their ladies. The program has been printed in our columns.

Dr. Charles H. Bradley, of Minneapolis, died on August 1, at the age of 50. He was a graduate of Northwestern, and was an assistant physician in the Illinois Eastern Hospital, at Kankakee, for six years. He was clinical instructor in the University Medical School, but resigned because of the press of private practice. He was president of the Hennepin County Medical Society in 1911, and secretary-treasurer for six years. He was a member of the Publication Committee of THE JOURNAL-LANCET at the time of his death. Resolutions of respect appear in another column.

Physicians desiring mailing outfits for specimens for examination in cases or suspected cases

of infectious disease should address the Division of Preventable Diseases, State Board of Health, University Campus, Minneapolis, unless residents of St. Louis and Blue Earth Counties. St. Louis County physician should address Duluth and St. Louis County Branch Laboratory, 228 New Jersey Building, Duluth, and Blue Earth County Physicians should obtain supplies from the Mankato Branch Laboratory, Immanuel Hospital, Mankato. The State Board of Health has authorized the extension of the territory to be served by the Mankato Branch Laboratory. Specimens from counties south, southeast, and southwest from Mankato now pass through Mankato en route to the Main Laboratories, Minneapolis, and reports may be made to physicians from six to twenty-four hours earlier by having these specimens examined at the Mankato Branch Laboratory. Therefore, as soon as the necessary supplies are available, notice will be given in these columns of the additional counties served by the Mankato Branch Laboratory.

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#### FOR SALE

A Wagner mica plate static machine with accessories, for sale. Price very reasonable. Write Dr. Russell, Stewartville, Minn.

#### STATIC MACHINE FOR SALE

Twenty-five dollars takes an 8-plate Brunzell static machine in fine condition f. o. b., Willmar, Minn. Address 240, care of this office.

#### PRACTICE FOR SALE

In good town 40 miles from Twin Cities; on a fine lake; with nice home on lake; also auto and office fixtures. Address 239, care of this office.

#### OFFICE WANTED

Physician wishes to rent offices with other physicians or dentist in a down-town office building in Minneapolis. Address 234, care of this office.

#### PARTNER WANTED

Wanted a man with surgical ability to form partnership in a general and hospital practice, in a good county-seat town in Minnesota. Scandinavian preferred. Little money required. Full control of hospital. Address 243, care of this office.

#### PHYSICIAN WANTED.

A live doctor and drug-store, either separately or together, in a rapidly growing and progressive new town in west central Minnesota. Well-settled, rich farming country, large territory, excellent graded and high school, electric lights, etc. Big chance for a live wire. Good store-building, vacant soon. No competition. Address 245, care of this office.

#### PRACTICE FOR SALE

Unopposed general practice in Minnesota village of about 300, with electric light, and situated on one of the finest lakes in the state. Protestant community. Good roads and good collections. Three-room brick building for office in center of town; rent \$10 per month. Wish to sell office-fixtures, drugs, etc. Price \$800. Two lots on lake shore, optional. Address 244, care of this office.

#### PRACTICE FOR SALE

In Minnesota, lucrative practice in village of 300 within short distance of Twin Cities; no other doctor, and two neighboring towns have none. Rich agricultural and dairy section. Population, mixed; good roads; collections, fine; nearest competition, 10 to 16 miles. Modern drug store building, including residence and offices. Cheap, \$3,500, or may be rented on long lease at \$30 per month. Oculist's hours cuts this to \$25. Drugs, medicines, fixtures, sundries, safe, typewriter, etc. Bargain, \$1,500. Doctor (not necessary to be pharmacist) gets rich in few years. Address 241, care of this office.



REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	1															
Albert Lea	4,500	6,192	14			1											1	2
Alexandria	3,681	3,001	3															
Anoka	3,769	3,972	5															
Austin	5,474	6,960	5		1												1	
Barnesville	1,326	1,353	0															
Bemidji	2,383	5,099	7			1												
Benson	1,525	1,677	5															
Blue Earth	2,900	2,319	1															
Brainerd	7,524	8,526	10		1													
Breckenridge	1,282	1,840	2														1	
Canby	1,100	1,528	1															
Cannon Falls	1,239	1,385	1									1						
Chaska	2,165	2,050	1															1
Chatfield	1,426	1,226	0															
Cloquet	3,074	7,031	3	1														
Crookston	5,359	7,559	8			1											1	
Dawson	962	1,313	2		1													
Detroit	2,060	2,807	4														1	
Duluth	52,988	78,466	68	9	4	4	1	1									1	4
East Grand Forks	2,077	2,533	0														1	
Ely	3,572	3,572	4	1		1												
Eveleth	2,752	7,036	8	1	1	1						1						1
Fairmont	3,440	2,958	3															
Faribault	7,868	9,001	8														1	
Fergus Falls	6,072	6,887	5													1	1	
Glencoe	1,788	1,788	2	1													1	
Glenwood	1,116	2,161	1															
Granite Falls	1,454	1,454	*															
Hastings	3,811	3,983	3															
Hutchinson	2,495	2,368	4														1	
International Falls		1,487	4	1		1											1	
Jordan	1,270	1,151	0															
Lake City	3,142	3,142	3														1	
Le Sueur	1,937	1,755	0															1
Little Falls	5,774	6,078	4															
Luverne	2,223	2,540	3														1	
Madison	1,336	1,811	1															
Mankato	10,559	10,365	17	1		1									1	1		
Marshall	2,088	2,152	0						2									
Melrose	2,591	2,591	0															
Minneapolis	202,718	301,408	338	43	10	24	2		7			1		2	6	21	1	25
Montevideo	2,146	3,056	3		1	1										1		
Montgomery	979	1,267	2															
Moorhead	3,730	4,840	2			1												
Morris	1,934	1,685	1															
New Prague	1,228	1,554	2															
New Ulm	5,403	5,643	9	1			1											
Northfield	3,210	3,215	2												2		1	
Ortonville	1,247	1,774	3													1		
Owatonna	5,561	5,658	3														1	
Pipestone	2,536	2,475	1															
Red Lake Falls	1,666	1,666	0															
Red Wing	7,525	9,048	8															
Redwood Falls	1,661	1,666	1															
Renville	1,075	1,182	1															
Rochester	6,843	7,844	18														8	
Rushford	1,100	1,011	2															
St. Charles	1,304	1,159	1														1	
St. Cloud	8,663	10,600	10	1		2	1											
St. James	2,102	2,102	0								1							
St. Paul	163,632	214,744	195	19	6	11	1	3	2			3				6	11	3
St. Peter	4,302	4,176	0															
Sauk Centre	2,154	2,154	1															
Shakopee	2,046	2,302	1															
Sleepy Eye	2,046	2,247	1														1	
South St. Paul	2,322	4,510	2															
Staples	1,504	2,558	3															
Stillwater	12,318	10,198	9		1												1	1
Thief River Falls	1,819	3,174	2															
Tower	1,111	1,111	1															
Tracy	1,911	1,826	3			1											1	
Two Harbors	3,278	4,990	4	1		1											1	
Virginia	2,962	10,473	7	3		1												
Wabasha	2,622	2,622	2															
Warren	1,276	1,613	3															1
Waseca	3,103	3,054	4														1	
Waterville	1,260	1,273	2														1	
West St. Paul	1,830	2,660	2															
Willmar	3,409	4,135	3														1	
Winona	19,714	18,583	20	1		1									1		1	
Winthrop	813	1,043	1															
Worthington	2,386	2,385	4														2	

## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyneuritis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian .....	1,258	1,112	2															
Aitkin .....	1,719	1,633	1															
Akeley .....			0															
Appleton .....	1,184	1,221	0															
Belle Plaine .....	1,121	1,204	1															
Biwabik .....		1,690	2			1												
Bovey .....		1,377	0															
Browns Valley .....	721	1,058	2															
Buffalo .....	1,040	1,227	0															
Caledonia .....	1,175	1,372	5															
Cass Lake .....	546	2,011	2															1
Chisholm .....		7,684	2	1														
Coleraine .....		1,613	2															
Delano .....	967	1,031	1			1												
Farmington .....	733	1,024	0															
Fosston .....	864	1,055	1	1														
Frazee .....	1,000	1,645	0															
Grand Rapids .....	1,428	2,239	2															
Hibbing .....	2,481	8,832	17	2		2	1				2				1			4
Jackson .....	1,756	1,907	2															
Janesville .....	1,254	1,173	2															
Kenyon .....	1,202	1,237	2	1														
Lake Crystal .....	1,215	1,038	1															
Litchfield .....	2,280	2,333	5															
Long Prairie .....	1,385	1,250	2															
Madelia .....	1,272	1,273	1			1												
Milaca .....	1,204	1,102	1	1														
Mountain Lake .....	959	1,081	0															
Nashwauk .....		2,080	0															
North Mankato .....	939	1,279	1			1												
North St. Paul .....	1,110	1,404	0															
Osakis .....	917	1,013	1			1												
Park Rapids .....	1,313	1,850	6	2												1	1	
Pelican Rapids .....	1,033	1,019	2															
Perham .....	1,182	1,376	2															
Pine City .....	993	1,258	0															
Plainview .....	1,038	1,175	1															
Preston .....	1,278	1,193	2															
Princeton .....	1,319	1,555	4		1													
St. Louis Park .....	1,325	1,743	0															
Sandstone .....	1,189	1,818	1															1
Sauk Rapids .....	1,391	1,745	3			2												
South Stillwater .....	1,422	1,343	2			1												
Springfield .....	1,511	1,482	0															
Spring Valley .....	1,770	1,817	1			1												
Wadena .....	1,520	1,820	2			1												
Wells .....	2,017	1,755	1						1									
West Minneapolis .....	2,250	3,022	2								1							
Whipon .....	1,132	1,300	1															
White Bear Lake .....	1,288	1,505	1															
Windom .....	1,944	1,749	*															
Winnebago City .....	1,816	2,555	*															
Zumbrota .....	1,119	1,138	4															

## STATE INSTITUTIONS

Anoka, Asylum .....	6																2	
Faribault, School for Blind .....	0																	
Faribault, School for Deaf .....	0																	
Faribault, School for Feeble Minded .....	7			2														
Fergus Falls, Hospital for Insane .....	13	5		1													1	
Hastings, Asylum .....	0																	
Minneapolis, Soldiers' Home .....	4		1															1
Owatonna, School for Dependents .....	0																	
Red Wing, State Training School .....	0																	
Rochester, Hospital for Insane .....	8																	
Sauk Centre, Home School for Girls .....	0																	
St. Peter, Hospital for Insane .....	8		2															
St. Cloud, State Reformatory .....	0																	
Stillwater, State Prison .....	2	1																

## OTHER PARTS OF STATE

741	76	16	55		4	4	1	7		2	3	19	62		44
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Total for state .....	1770	179	45	122	7	10	14	2	16	0	2	7	38	130	10	100
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\*No report received. Registrar not doing his duty.

134 stillbirths not included in above totals.

## PUBLISHER'S DEPARTMENT

### ANTIPHLOGISTINE

Antiphlogistine acts, through the cutaneous nerves upon the inflamed area, as a powerful stimulant to the blood-vessels and lymphatics, promoting elimination of morbid products. It supplies, by natural, physiological processes, regenerative material to the parts already suffering from that condition of perverted nutrition, which is a part of the inflammatory process.

### THE MILWAUKEE SANITARIUM

It is always a pleasure to call the attention of our readers to an institution like that conducted by Dr. Richard Dewey, at Wauwatosa, Wis.

Dr. Dewey has done the medical profession a real honor in the establishment and management of his sanitarium; and the physician who sends a patient to the Milwaukee Sanitarium may always know that no better treatment can be obtained, either at home or abroad.

### VAN HORN AND SAWTELL PRODUCTS

On the last cover page of this issue will be found an announcement of interest by Messrs. Van Horn and Sawtell, referring to their special obstetrical suture, their K-Y lubricating jelly, and, particularly, to their "Interol," which they are now again able to manufacture because they have obtained an American oil quite as good as the German product, cut off by the war.

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### FRANK S. BETZ CO.

We once heard that "Jones, he pays the freight"; we now hear "Betz, he delivers the goods."

On another page will be found a picture of a handsome enamel office outfit,—just such as every physician, even in the small country practice, needs; and it can be had, of course, of Betz, for \$5.00 down and seven equal payments of \$10.00 each, timed to suit the doctor.

Now, Betz says the outfit in any doctor's office will earn every payment, and so the outfit costs nothing, and still goes on earning after the seven payments are made.

Sounds reasonable? Ask Betz about it. He knows.

### MELLIN'S FOOD

The need of an infant food as a substitute for, or an auxiliary of, mother's milk, like the need of medicine, is an unfortunate thing; but so long as it is a *real* thing, medical men must seek the best obtainable. The Mellin Company feel that their product has kept more closely to the formula determined by advanced scientific investigation than any other commercial product; and for evidence of the truth of their claim they point to the history of this Food and the history of the work of the leading American and European pediatricists.

Such a food as Mellin's is often found to be far superior to cow's milk as handled in either the country or the city. The food is easily administered in a uniform course; cow's milk can scarcely be so maintained and administered.

### TRUE CORPUS LUTEUM

Such good results have been reported from the use of true Corpus Luteum in 2-grain doses that Armour and Company have decided to put up 2-grain capsules in bottles of 50. Physicians now may obtain true Corpus Luteum by specifying Armour's in 2- and 5-grain capsules and 2-grain tablets. This is also furnished in powder,—one-oz. bottles,—for dispensing in any sized dose that the medical man may desire to use.

True Corpus Luteum is the therapeutically active product. The false substance appears to be worthless; therefore, in order to get results, the physician should specify Corpus Luteum (Armour) in all cases where the effects of Corpus Luteum are desired.

### CREAM OF BARLEY

Medical men have too long thought of barley as food for the sick or the invalid, to be gotten away from, like most medicines, as quickly as possible. Barley's place as a food, especially as a breakfast food, for both children and adults, has thus too long been usurped by the wheat and corn products. It is far superior to either, particularly in the case of a digestive tract in the least below the normal of the strong, healthy man. Every brain-worker and every one of sedentary habits or of indoor life, should use barley at least once a day.

"Cream of Barley" manufactured by the American Barley Co., of Minneapolis, has a stronger claim on the classes above mentioned, including children, than any wheat or corn product on the market.

Physicians should know Cream of Barley, and when they know it they will use it and recommend it.

### THE SCANDINAVIAN NATIONAL BANK

While a city bank with a capital of only a million dollars is now-a-days reckoned a "small" bank, it has the distinction of being an *ideal* bank for the customer who wants only moderate accommodation in the way of loans, but maximum accommodation in the courtesies and privileges that attach to a bank account.

Falling within this class, not only because of the amount of its capital, but because of the character of its officials, comes the Scandinavian National Bank of Minneapolis, now occupying the beautiful quarters formerly occupied by the Security National Bank in the Security Building.

The accounts of physicians, in and outside of Minneapolis, will be welcomed by this bank; and any business courtesy and privilege will be extended to members of the profession, many of whom so greatly need the counsel of banking men.

### THE MUDCURA SANITARIUM

The layman hears much of the present active discussion among medical men that so-called rheumatism has its origin in some pus cavity, but when he cannot get rid of his pains or his crutches, he is likely to think of the various sources of relief of which his neighbors talk, and talk from experience.

Prominent among such sources is the above sanitarium, which is only an hour's railway ride from the Twin Cities.

Now, we ask, why should not physicians send their patients, for even temporary relief, to such an institution as that conducted by Dr. H. P. Fischer? Surely, with only temporary relief the physician has yet enough



to do for his patient. If he gets permanent relief from the mud bath, the physician has gained the gratitude of the patient, and done his duty. Why not give every promising case a try-out with the mud bath?

### THE LUNG MOTOR

The Lungmotor has so fully demonstrated its value in saving life, that it seems almost inexcusable for a hospital or a municipality, large or small, to be without one. Its efficiency, when used early enough, is practically one hundred per cent; and the number of lives saved by it every month in the year marks it as an invention of great value and merit.

If any surgeon, physician, or health officer thinks our statement exaggerated in the least degree, let him ask Messrs. Noyes Bros. & Cutler, of St. Paul, or the Life-Saving Devices Co., of Chicago, for a list of the hospitals and municipalities that now use it. Indeed, one has but to read the daily newspapers to be convinced that the Lungmotor is abroad in the land,—at the operating-table in the hospital, at the bedside where the new-born infant is in danger, at the lakeside and in the shop where life is endangered by drowning and the various accidents common in all industrial operations, and, in fact, wherever life is suspended by shock or otherwise.

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HONOR ALSO FOR SCHERING'S  
ASSUR PROCESS FOR COLOR-  
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For several years, Schering's Synthetic Camphor has been generally accepted as the absolute chemical equivalent of the natural product. Manufacturers of celluloid and explosives, in particular, have conclusively demonstrated that in these industries the chemically elaborated camphor can readily take the place of the natural and they have used it on a large scale at times when the price of the latter had become exorbitant, as for instance, during and after the Russo-Japanese war.

For the physician, however, Schering's Synthetic Camphor has until recently meant little more than another

of those awe-inspiring feats of modern organic chemistry which has robbed Mother Nature of so many of her great secrets and has become her close rival by producing a number of our present day necessities from their basic elements in the laboratory and factory, undisturbed by climatic conditions and other vicissitudes of nature.

At every occasion at which Schering & Glatz, the Schering representatives in the United States, have displayed Synthetic Camphor, it proved a source of great attraction, but also of skepticism, and not until minute examination as to odor, structure, taste, etc., had been made would bystanders believe that nature's camphor factory—the tree—had ceased to be the only source of supply of this most valuable material.

Endeavors by pharmacologic investigators to have Schering's Synthetic Camphor officially accepted as the medicinal equivalent of the natural product, seem at last to have received adequate recognition by the authorities and the forthcoming new edition of the U. S. Pharmacopæia is said to do justice to the facts.

Considerable weight must be attributed to the recently published results of an investigation by no less an authority than Prof. C. Bachem, of the University of Bonn (Medizinische Klinik, 1915, No. 15), which reaffirms the absolute identity of the synthetic and the natural camphor and also fully establishes the fact that they possess the same medicinal value.

Almost simultaneously, advices have been received from San Francisco that the Grand Jury of the Panama-Pacific Exposition has awarded a medal of honor, the highest distinction given to that class of exhibit, to the Schering Chemical Works for Synthetic Camphor in its various forms.

Only one other award of equal distinction having been made to the German chemical industry, the Schering Chemical Works have good reason to be proud of this new appreciation of the splendid achievement represented by their Synthetic Camphor.

Physicians interested in photography will also rejoice with the Schering Chemical Works and Messrs. Schering & Glatz at the award of a gold medal to the Assur Process, the only known means of applying truly artistic, transparent and permanent color effects to photographs, which can be readily practiced by amateurs and an unusual feature of which is the fact that any errors made, can be promptly and repeatedly removed without injury to the photograph.

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# THE JOURNAL- LANCET

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## THE CLINICAL SIGNIFICANCE OF BLOOD-PRESSURE\*

By ORVILLE N. MELAND, B. S., M. D.

DAWSON, MINNESOTA

Progress is the key-note of the 20th century, and nowhere has it been so manifest as in medical circles. Each year sees the perfecting of our physical methods of diagnosis and the introduction of instruments of precision for the purpose of confirming our findings. One of the particular lines along which we have advanced is in blood-pressure work; and, although we still have much to learn, it is astounding to think that its development is a product of the last decade. But what seems more astounding is that we have not put these findings to general clinical application. The purpose of every physical examination is diagnosis; therefore it behooves us to use blood-pressure readings as one of our physical findings, since it is nothing more than a combination of inspection and palpation interpreted on a mercury column.

Blood-pressure, as we know, is a comparative term. It is that relation which exists between the heart and the periferal vessels, and it is dependent on three great factors, namely, (a) the strength of the heart; (b) the peripheral resistance to the blood-flow; and (c) the total volume of blood. When any one of these factors does not conform to natural conditions there is either a distinct rise or fall in pressure, the former of which we term *hypertension*, and the latter *hypotension*.

The interpretation of blood-pressure readings has been a matter of much discussion. Numerous investigators have been at work studying pressures under various conditions, in order to

draw conclusions which will be of diagnostic and prognostic significance. Though much has been written, we are still somewhat at sea because of the types of instruments used in obtaining results. We find some men giving readings from the unreliable Gartner tonometer; others from the Hill-Barnard manometer; and, finally, some from the Riva Rocci. To arrive at any definite conclusions, we should seek to be as nearly uniform as possible; and to this end a standard instrument should be used which can be relied on. This can best be done by using the Riva Rocci or one of its modifications.

To the general practitioner, who takes only an occasional reading, blood-pressure readings usually mean hypertension, and this in turn signifies nephritis. As for hypotension, it is quickly passed over as due to some asthenic process, without looking for the cause. Nothing can be more erroneous. Pressure readings are not only diagnostic in more things than nephritis, but they make or break our prognosis. Cook says, "The fact that is not generally understood is that the course of change of blood-pressure, especially in hypertension, as measured from day to day, is parallel to the patient's general condition. No touch can appreciate 10 mm. Hg. after a night's rest; but it is a return to normal; and its determination by the Riva Rocci is so readily made as to make it a good practice; and it gives an indication for therapy."

In discussing hypertension we must first have an idea as to the normal. The actual limits of a normal reading vary with the different investigators, according to age and sex; but the general understanding is that readings from 120

\*Thesis for which the Dr. John W. Bell prize for 1912-13 in the Medical School of the University of Minnesota, was awarded to the author.

to 140 mm. Hg. are normal and anything above this is abnormal and pathological.

The causes of hypertension are many; but the most common one is, as Jackson says, a toxin in the blood, such as occurs in scarlet fever, uremia, and intestinal disorders. This, however, is not the only cause, as some forms of sclerosis of the vessels are associated with hypertension. Intestinal disorders with infections are an undoubted cause, as is shown by Chart No. III. The case is that of a male with acute nephritis, becoming chronic. Treatment caused a disappearance of his symptoms, but his urine showed no change. All was finally explained by a sudden attack of gangrenous appendicitis, revealing the fact that a chronic infection, which had been present all the time, finally had become acute.

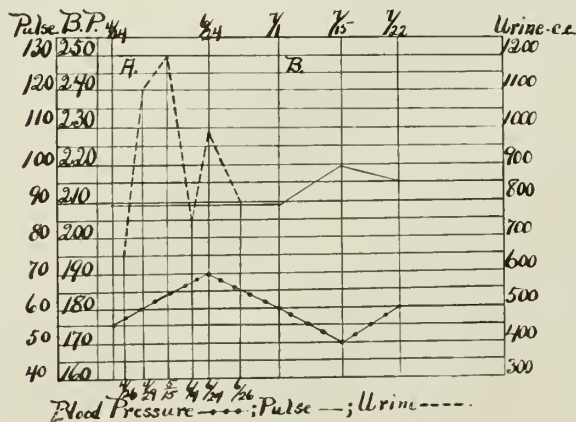


Chart I.

The relation of hypertension to sclerosis of the peripheral vessels is interesting. The general idea is that sclerosis is a cause of high blood-pressure, but this does not of necessity follow. Rudolf found, in his cases of arteriosclerosis, that there was hypertension in only 50 per cent of the number, and this occurred only when the splanchnic vessels were affected. Dickenson showed that of 500 miners, 456 had thick arteries. In 116 of this number under 20 years of age the radial artery was palpable; and in 44 it was not palpable, and of these only 31 had a blood-pressure over 140 mm. Hg. This seems to show that a localized peripheral sclerosis is not a cause of hypertension; while a sclerosis of the great abdominal reservoir, the splanchnics, causes increased work on the part of the heart with a resulting rise of peripheral pressure. Chart No. IV, of the woman in labor, shows that during each pain the peripheral pressure went up. The only logical conclusion we can draw from this is, that intra-abdominal pressure was so increased

that the blood found an easier exit in the peripheral vessels, and consequently the readings were increased. The same thing occurs in splanchnic sclerosis, only in this case the resistance is constant and is found in a thick undistensible vessel wall, instead of being applied temporarily and externally to an elastic vessel. What is apparently a case of splanchnic sclerosis is shown in Chart No. V. This was a female who entered the hospital for prolapse of the uterus. On going over her it was found that she had sclerotic arteries and a high blood-pressure of 238 mm. Hg. The heart was not enlarged, as outlined, but the 2nd aortic was accentuated. The urine showed a faint trace of albumin and a few finely

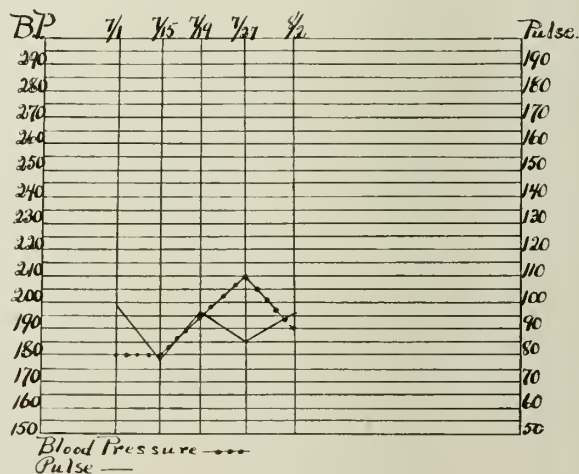


Chart II.

granular casts. The patient was put on the regular treatment for nephritis with the hope of reducing the pressure, but there was very little improvement. It seems reasonable, therefore, to assume that the high blood-pressure was due to a splanchnic sclerosis, especially since there was a complete absence of symptoms pointing to renal insufficiency other than those mentioned.

Hypertension occurs in all cases of nephritis; but in the acute type the tension is not necessarily high. This is shown by Chart No. III. The case illustrated was that of a male who complained of dizziness and swelling of the face. He gave a typical history and findings of nephritis, but there was no marked hypertension. However, as the case became more chronic the pressure went up, showing that the toxemia was beginning to tell on the resistance offered to the heart. Another instance where there was not a very high blood-pressure was in the case of a girl, aged 8, who had an acute attack of nephritis following pneumonia and empyema.



The pressure was only 135-140 mm. Hg.; and still the edema was the worst ever seen in the hospital. That this pressure was pathological was noticed from readings obtained later. An abdominal paracentesis, liberation of pus from the pleural cavity, hot packs, and cathartics reduced the pressure to 110 mm. Hg. on the third day after admission.

In most cardio-nephritic conditions we find hypertension. One would be led to think that an uncompensated heart, secondary to a kidney lesion, would usually mean a low blood pressure. That this is not so is proved by Charts Nos. I and II. These cases came in complaining of dyspnea and palpitation. Examination of the

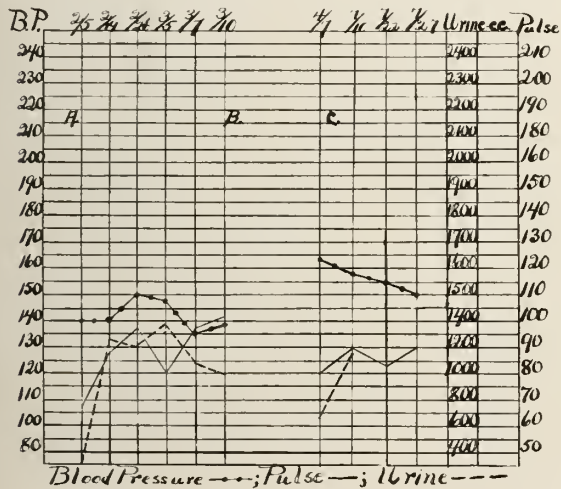


Chart III.

urine showed albumin and casts, but whether the heart lesion was primary with a congestive cardiac lesion or a primary-secondary nephritis existed, remained to be seen. The situation was cleared up by the blood-pressure readings, for readings of 175-180 mm. Hg. never occur in a nephritis due to a chronic congestion. This was not the limit of information derived from blood-pressure readings, but, as may be seen from Chart No. I, cardiac improvement caused a rise in pressure and as this increased the quantity of urine went up; and, vice-versa, as the heart weakened the pressure and the urine fell in proportion. This gives us a suggestion in our line of treatment. The general idea of pressure is that it should be lowered, but if this chart means anything, it means that in these nephritic conditions a certain pressure must be maintained in order to have urinary excretion. While this pressure is apparently pathological, it is normal, in the person in question, for urinary excretion.

Uremia, a sequel of nephritis, is a condition

in which blood pressure readings are of great benefit. Here, during each convulsion, the pressure goes up; and the onset of a convulsion can be foretold by the steady rise of the mercury column. When the attack wears off, the readings become lower and lower until the normal for the individual is attained.

Cook and Briggs, in their article, describe the pressure as it occurs in apoplexy due to hemorrhage. In comas due to this cause the pressure readings are of diagnostic value, for in no other condition does the mercury column rise so high. Not only are the readings diagnostic, but they are prognostic as well, for they tell us of the amount of intracranial tension with its resulting

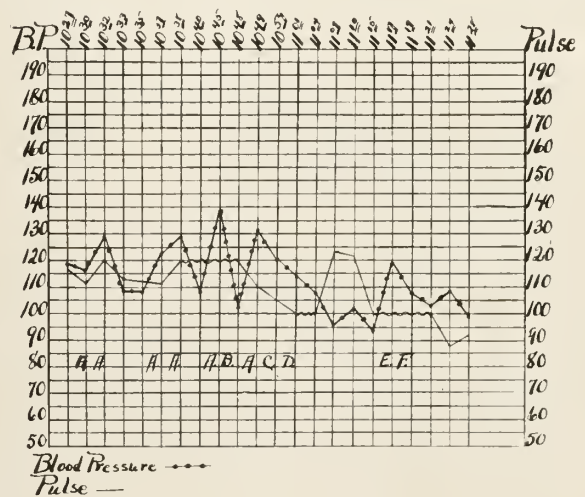


Chart IV.

effects on the vasomotor center in the medulla. (Chart No. VI.) It is here that evacuation of the clot is indicated rather than venesection, for the rise of blood-pressure is nature's way of preserving life.

Hypotension, as mentioned previously, is not very well understood, except that it occurs in all exhausting and debilitating diseases. In other words, it is a symptom of cardiac weakness, whether it be primary, as in acute dilatation, or secondary, as in acute infections. Usually it is not of much diagnostic import, but there are times when with other findings it tells us much, provided we know how to interpret our readings. In all acute infections the pressure is low, as Cook, Briggs, and Janeway have shown, this being a direct result of toxemia.

One of the typical diseases in which hypotension is very manifest, is typhoid fever. In this infection it has been noted that continuous readings every four hours may be of very great value, for, as Cook and Briggs have found, in

cases of perforation the pressure rises 30-40 mm. Hg. three or four hours before the clinical symptoms appear. This is beautifully illustrated by Chart No. VII, taken from Cook and Briggs' article. They describe their case as follows:

"The patient was suffering from profound toxemia, was frequently delirious, and had been under stimulation the whole time of observation; for ten days the blood-pressure had ranged between 98 mm. Hg. and 110 mm. Hg., occasionally rising to 115 mm. Hg. immediately after the administration of a stimulant (strychnine). There had been a slight diarrhea, no hemorrhage, and no symptoms of any kind to call attention especially to the abdomen, until in the course of the routine measurements the blood-pressure

the lowest 156 mm. Hg. In five cases diagnosed as typhoid perforation, four were verified by operation or autopsy. He gives his results as follows:

Case I. Not operated on; pressure rose from 116 to 190 mm. Hg. in four hours.

Case II. Pressure rose from 84 to 110 mm. Hg.

Case III. Pressure rose from 116 to 165 mm. Hg. in two hours with a slight increase in pulse.

Case IV. Pressure rose to 165 mm. Hg., and perforation was verified by autopsy.

Case V. Pressure rose to 208 mm. Hg., and was verified by operation.

These findings by Crile, and Briggs and Cook mean that by neglecting to take blood-pressure

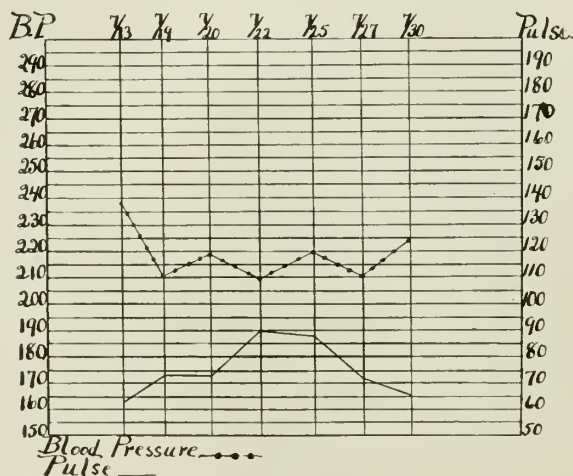


Chart V.

was found one night to have risen within four hours from the previous level to a height of 145 mm. Hg. The patient at that time was in no pain; the abdomen was soft, not distended, and nowhere tender on palpation. Four and one-half hours afterwards, the patient while in a tub cried out suddenly with severe abdominal pain and was nauseated, and on examination was found to have a tender, rigid abdomen with suggestive muscle-spasm and beginning distension. At operation several perforations were found low down in the ileum, there was pus in the pelvis and a rapidly spreading peritonitis. There had at no time been any leucocytosis."

Crile confirms these findings in a preliminary report in the *Journal of the A. M. A.*, 1903, where he discusses the diagnostic value of blood-pressure in typhoid perforation. He found that the highest blood-pressure in uncomplicated typhoid was 138 mm. Hg., and the lowest was 74 mm. Hg. In twenty cases of acute peritonitis the highest pressure was 208 mm. Hg., and

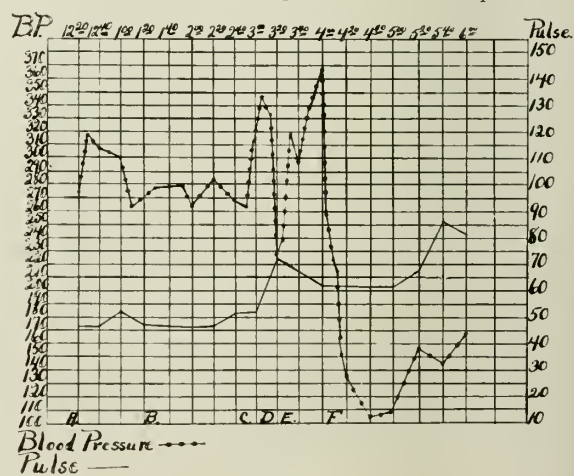


Chart VI.

readings every three or four hours, we are deprived of the opportunity of making an early diagnosis in case of typhoid perforation and of the better chance of saving the patient's life.

The cause of this rise of pressure is a vasoconstriction of the splanchnic vessels, which forces the blood to the extremities. This constriction is due in turn to the peritoneal irritation from bacteria and fecal matter.

A condition often misleading in typhoid, and presenting the same clinical symptoms as a perforation, is a hemorrhage. The diagnosis is easily made, provided there have been continuous blood-pressure readings; for in a hemorrhage the pressure falls, whereas in a perforation it rises. That hemorrhage causes a fall is shown by Chart No. VIII. Here the case was one which entered the hospital on the medical service and was transferred to the surgical side for an exploratory laparotomy. The patient happened to be a hemophiliac; and naturally after the operation he began oozing, not only from the

wound, but also from his mucous membranes, as was shown by bloody vomitus and bloody urine. The pressure fell from 116 mm. Hg. to 88 mm. Hg.; and after a direct transfusion it arose to 132 mm. Hg. In two days it was down again to 90 mm. Hg., so that a second transfusion was necessary. Unfortunately, it was impossible to get the pressure on the arms after the second transfusion because of the wounds, but a month later the pressure was 112 mm. Hg.

Perhaps the greatest cause of a sudden hypotension is shock. Here we have an exhaustion of the vasomotor center with dilatation of the splanchnic vessels. The pressure readings give us a clew as to the depth of the shock and the prognosis the case is giving. Cook and Briggs

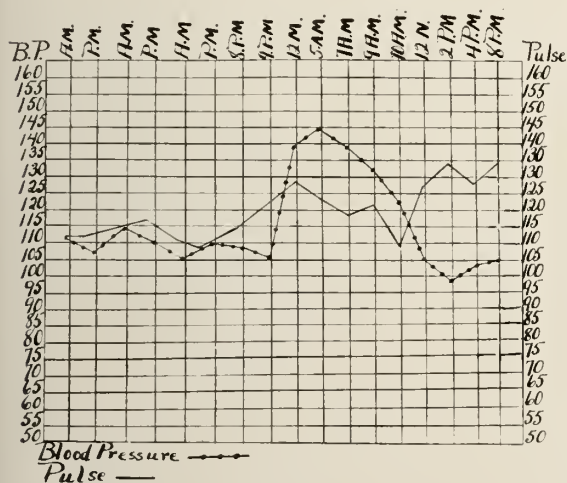
3. Acute nephritis is not necessarily associated with a high blood-pressure, but there is a slight hypertension.

4. Cerebral hemorrhage gives the highest pressure readings on record.

5. Blood-pressure readings continuously kept in typhoid fever are diagnostic of perforation, provided there is a rise. This rise precedes the clinical symptoms two to four hours.

6. Hypotension is very marked in shock. Here pressure readings are prognostic, for they tell what treatment is effective and what is not.

It is not the wish of the writer to have it understood that blood-pressure should be absolutely depended on for diagnosis; but he does wish





## THE REFLEXES IN HEALTH AND IN ORGANIC AND FUNCTIONAL DISEASES\*

BY OLOF SOHLBERG, JR., B. S., M. D.

ST. PAUL

Nowadays, with many new short-cut methods of diagnosis in vogue, there is too great a tendency to rely on these to the exclusion of the reflexes, which should be allowed to supplement them.<sup>1</sup> We can ill afford to do without the reflexes, because, besides giving us much information, they are readily available without any special apparatus. They are of value as aids in diagnoses in—

1. Differentiation of organic from functional affections of the nervous system.
2. Differentiation of one organic disease from another.
3. Localization of the seat of the morbid process.
4. Determination of the extent and severity of the mischief.

In presenting this paper I had the idea that a careful study of some of the reflexes in a number of different diseases would be of interest, and possibly lead to something new as an aid in early diagnosis. To facilitate the work done in odd hours I had cards printed like the one appended. Special interest was centered in the bulbocavernosus reflex<sup>2, 33</sup> upon which so little has been done.

*Eyes.*—Under this heading were noted preservation of all movements, exophthalmus, nystagmus, preservation of the regularity of the outline of the pupils, and their reaction to light and accommodation (Argyll-Robertson pupil).

Preservation of all eye-movements means integrity of nuclei and cranial nerves III, IV, and V, and all the ocular muscles,<sup>3</sup> paralysis of any one being due usually to syphilis or tuberculosis.<sup>4</sup>

Exophthalmus is not fully understood. It is thought to be due to increased growth of the orbital contents, edema, and congestion due to arterial dilation of toxic origin.<sup>5, 6</sup> It also occurs from stimulation of the cervical sympathetic by tumors, and so forth.<sup>2</sup>

Nystagmus may be due to prolonged muscular strain, to degeneration in the motor areas or in the nuclei of N.III, IV, or VI, or in the nerves between the centers and the muscles themselves, from a multitude of causes, and to many dis-

turbances of equilibrium.<sup>5, 7, 2, 8, 9</sup> An irregularity of the outline of the pupil, if local diseases can be excluded, signifies syphilitic disease of the central nervous system,<sup>2</sup> the lesion being in the ciliary ganglion or short ciliary nerves.

The Argyll-Robertson pupil, in which there is a response to accommodation and not to light, has the same significance.<sup>2, 10, 11</sup> It indicates involvement of the ciliary ganglion. Bing places as much importance on these two findings as on a positive Wassermann.<sup>6</sup>

*Chvostek's Phenomenon.*—Twitching of the corner of the mouth upon tapping the 7th nerve near its exit. It indicates a hyperirritability of the 7th cranial nerve, and is quite constant in tetany (spasmophilia).<sup>12, 7, 13, 2, 4</sup>

*Pharyngeal Reflex.*—This is so inconstant a phenomenon that its value is doubtful. It is faint or absent in more than half of healthy persons.<sup>14</sup> Its absence is almost constant in hysteria.<sup>15</sup> It affects the 9th and 10th cranial nuclei.<sup>7</sup>

*Tendon Reflexes.*—Care must be exercised in getting tendon reflexes. The tendon to be tapped should be put slightly on the stretch,<sup>15</sup> and watched very carefully for the first response, as at times that is the only one elicitable.<sup>3</sup> It can often be felt where the response is too slight to be seen. The presence of a reflex, however faint, is of the greatest importance, as it demonstrates the presence of a reflex arc.<sup>6</sup> Reflex responses are increased by anything increasing muscle-tone,<sup>16, 17</sup> by chronic toxemia and cachexia,<sup>3</sup> by psychic excitement,<sup>3</sup> and by Jendrassik's or Laufenauer's method of reinforcement.<sup>18, 19, 2</sup> They are decreased by anything lowering the muscle-tone,<sup>16, 17</sup> voluntarily,<sup>20</sup> by fatigue and excitement,<sup>21</sup> and at times by attempted reinforcement.<sup>3</sup> They are sometimes (rarely) absent in health. The reflexes of the upper extremities are, comparatively, rather inconstant and difficult to elicit,<sup>3</sup> and are of less diagnostic value than those of the lower.

*The Biceps Reflex.*—This affects the 5th cervical segment, and is rather difficult to elicit. According to Greene<sup>15</sup> it is present only in disease. Sahli states that it is present in 47 per cent of healthy individuals; but others say it is very constant, but very difficult to prove.<sup>6</sup>

\*Thesis for which the Dr. John W. Bell Prize for 1913-14 in the Medical School of the University of Minnesota, was awarded to the author.

*The Triceps Reflex.*—This inquires into the integrity of the 5th, 6th, and 7th cervical segments. It is easier to elicit than the biceps. Curschman states that, though it is never absent in health,<sup>3</sup> the difficulty lies in being sure of the response. According to Sahli and Geigel it is present in 48 per cent of normal people.<sup>3, 23</sup>

*The Extensor Jerks of the Forearm.*—They affect the 4th to the 7th cervical segments, and are very inconstant, occurring in 29 per cent of healthy individuals.<sup>3, 23</sup>

*The Abdominal Reflexes.*—They are of great importance, especially in neurologic cases. The upper is present in 98 per cent of cases, and affects the 8th and 9th dorsal segments, the middle in 99 per cent of cases, and the lower in 92 per cent of cases.<sup>3, 23</sup> The two latter affect the 10th and 12th dorsal segments, respectively. Unilateral absence is of the most importance. They are absent on the paralyzed side in hemiplegia,<sup>25</sup> on the side opposite brain tumors,<sup>25, 1</sup> over acutely inflamed intestines,<sup>43, 44</sup> and early in multiple sclerosis.<sup>24, 2</sup>

*The Patellar Reflex.*—This is the oldest and most studied of all reflexes. It is present in all but 0.04 per cent of all normal cases.<sup>3, 23</sup> It affects the 2d to 4th lumbar segments. To be certain of increased knee-jerks, patellar clonus must be present.<sup>6</sup> It is of great diagnostic value.<sup>27</sup>

*The Achilles Jerk.*—This has been greatly underestimated in value, and is not used enough. F. Conzen found it present in every one of 3,290 cases where central or peripheral lesions could be ruled out. He says it is easier to elicit than the patellar, and is more constant. The best method is to strike the tendon near the os calcis with the patient kneeling in a chair.<sup>28</sup> It affects the 1st and 2d sacral segments. It is important in diagnosis of early tabes,<sup>2</sup> and valuable in sciatica, being present in neuralgia and absent in neuritis.<sup>2</sup> An ankle clonus is the only absolute indication of an increased Achilles jerk.<sup>6, 29, 30, 31</sup>

*The Cremasteric Reflex.*—This reflex affects the 1st lumbar segment, and is very important in diagnosis of transverse lesions of the cord. It is absent under the same conditions as the abdominal, and is present in 66 per cent of cases.<sup>3, 23, 6, 32</sup>

*The Bulbocavernosus Reflex.*—This reflex affects the 3d and 4th sacral segments. There is but little reference to it in the literature.<sup>2, 33</sup> It is supposed to be present in all healthy males,<sup>33</sup> and is quite an important sign.<sup>2</sup> It is elicited by

pinching or pricking the head of the penis or foreskin; and a contraction of the cavernous portion of the urethra just behind the scrotum can be felt.

*The anal reflex* affects the lowest reflex arc, 5th sacral, and conus terminalis. It is absent sometimes in tabes and in anesthesia of the perineum. Not much has been done on it, and it seems to have little value.<sup>6</sup> It is constant in health.<sup>33</sup> (See also Reference 2.)

*Babinski's phenomenon* is the most important of all superficial reflexes. It is never present in any functional disease.<sup>2</sup> It is due to disease of the pyramidal tracts,<sup>32, 2</sup> but is present also physiologically in deep sleep or early narcosis and in infants.<sup>3</sup>

*Ankle clonus and patellar clonus* merely indicate greatly exaggerated Achilles and patellar jerks, each jerk being the impulse for the one following. If an ankle clonus occurs before the foot gets to a right angle hysteria is usually the cause,<sup>15</sup> especially if the clonus is not well sustained.

*Romberg's phenomenon* occurs in anesthesia of the lower limbs, ataxia with or without anesthesia (tabes), in affections of the cerebellum and in peripheral neuritis (alcoholic). It depends also upon a disturbance of equilibrium.<sup>3</sup> It is the very best method of eliciting evidence of incoordination.<sup>34, 35</sup>

## MY CASES

Diabetes mellitus .....	6
Nephritis .....	18
Pernicious anemia .....	4
Paralysis agitans .....	4
Epidemic cerebro-spinal meningitis.....	1
Sydenham's chorea .....	6
Apoplexy .....	3
Spinal cord tumor .....	1
Hysteria .....	21
Neurasthenia .....	18
Epilepsy .....	11
Exophthalmic goiter .....	6
Delirium tremens .....	3
Multiple sclerosis .....	2
Tabes dorsalis .....	16
General paresis .....	5
Brain tumor .....	2
Maniac depressive insanity.....	1
Asthma .....	2
Miliary tuberculosis .....	1
Acute appendicitis .....	4
Chronic appendicitis .....	8
Lobar pneumonia .....	19

Rheumatic arthritis .....	7
Total .....	169
Normal cases .....	27
Grand total .....	196

*Normal Cases*—27.—All males varying from 17 to 31 years of age. In all of these the eyes were perfectly normal. Chvostek's phenomenon appeared in 3 cases, one with a history of "fits" when a baby and giving the typical electrical reactions of spasmodophilia.<sup>19</sup> The pharyngeal reflex was present in 14 cases. The biceps jerk was elicitable in 22 cases; the triceps in 25; and the extensors responded in 9 cases. The abdominal were all present and easy to prove. The cremasteric, patellar, and Achilles were all easily elicitable. The bulbocavernosus and anal were all prompt and quite well marked. No ankle or patellar clonus, Babinski, or Romberg was present in any case.

*Diabetes Mellitus* (6 cases).—I found the eyes all normal except in one, in which the Argyll-Robertson pupil was present. It was in a far-advanced case with numerous furuncles. The Chvostek was present in one, and the pharyngeal response in two. The biceps and triceps were absent in 4, faint in one, and absent in one. The extensors were absent in all. The abdominal were all present. The cremasteric was absent in one case. The patellar was absent in two, present only faintly on reinforcement in one, and normal in the last. The Achilles was absent in one, and present in five. The bulbocavernosus was present in all except one, and the anal was present in all and quite prompt. Babinski was present in one, and Romberg in the same man. No ankle or patellar clonus present.\*

*Nephritis* (18 cases).—The reflexes were all apparently normal in 15 old chronic and rather mild cases. In one of these cases, however, markedly exaggerated jerks, with patellar and ankle clonus and Babinski, were present on one side; the other side was perfectly normal; the one-sided phenomena being due to a cerebral embolus from a heart lesion. In two cases, (pregnant women), in which uremic symptoms were beginning to manifest themselves, the reflexes were all very exaggerated, with ankle clonus and Babinski. In another case, after several convulsions had occurred, all the reflexes were absent. Argyll-Robertson pupil was pres-

ent in two cases, one with a clear history of syphilis.†

*Pernicious Anemia* (4 cases).—The eye-reactions were perfectly normal in all. No Chvostek in any case, and pharyngeal in one. In the upper extremity all the tendon reflexes were absent in two, diminished in one, and a little exaggerated in one. In two the abdominal were absent, as were all the lower cord reflexes. No Babinski in any case. The penile and anal were both prompt in two cases; only the anal was present in another case; and both were absent in the fourth.\*

*Paralysis Agitans* (4 cases).—In all of these the eye-reactions were perfectly normal. In one case a Chvostek was present, and the pharyngeal was marked in two cases. In two the tendon reflexes were just a little exaggerated, and in two they seemed to be normal. Ankle clonus apparently existed in one case, but it was decided to be due to tremor. The abdominal and cremasteric were normal. In one case with occasional incontinence of urine the bulbocavernosus reflex was absent, but was present in all the rest. The anal was present in all.\*\*

*Hysteria, or so diagnosed* (21 cases).—Four showed contractures of the feet and legs. The tendon reflexes were all a little exaggerated, and the skin reflexes were all about normal. In one case with anesthesia about the anus and perineum the anal reflex was still present. A false ankle clonus existed in one case. The pharyngeal reflex was absent in nineteen, and in two the Chvostek was present. The eyes responded normally in all.

*Neurasthenia, or so diagnosed* (18 cases).—Fourteen gave slightly increased tendon reflexes, and in four they were normal. Chvostek's sign was present in five; two of these gave a history of "fits" when babies. The anal and penile (one male) were all normal. The eyes were normal in all.‡

*Epilepsy* (11 cases).—One case I ruled out as not being idiopathic epilepsy because of a positive Wassermann, sluggish pupils, exaggerated knee and ankle jerks with ankle clonus, Babin-

†A Babinski is an early precursor of uremic convulsions.—Drs. Hammes and Gilfillan.

\*The cases with absent reflexes were possibly beginning diffuse degeneration due to the pernicious anemia.

\*\*Further work should be done with reference to this reflex in incontinence.

‡As a matter of interest it was noted that eleven gave a positive history of exposure to tuberculosis, and seven had the appearance of people with incipient tuberculosis. Three had a positive clinical diagnosis of tuberculosis.

\*The case with the associated disturbances of his reflexes was probably one of cerebrospinal syphilis with diabetes also present.



ski, and a slight Romberg.\* Two cases I saw just after their attacks and in one all the tendon reflexes were absent, as were the abdominal, but the bulbocavernosus was faintly present.† In the other a little longer time had elapsed since the attack, giving a positive anal and bulbocavernosus response and a faint Achilles jerk. In all the others the reflexes were all perfectly normal.

*Exophthalmic Goiter* (6 cases).—Chvostek in four, the pharyngeal in five, and the eye responses normal in all. Exophthalmus was present in two, possibly present in two, and absent in two. In three the tendon jerks were increased with no clonus present. In two the upper cord reflexes were exaggerated, and the lower diminished. In one they were all very faint. In the one male the bulbocavernosus was exaggerated, and the anal was also exaggerated in all cases.

*Delirium Tremens* (3 cases).—Chvostek and pharyngeal in all three. The eyes were sluggish in response to light in two; positive Wassermann in both. All the tendon reflexes were a little exaggerated, and one gave an ankle clonus. Bulbocavernosus and anal were very marked.

*Multiple Sclerosis* (2 cases).—The eyes were perfectly normal in both. The Chvostek phenomenon and pharyngeal reflex were both present in one case. All the upper cord reflexes were normal in both cases. The abdominals on the right side were absent in one, and both of the upper abdominals in the other. The patellar was normal in both. The cremasteric and bulbocavernosus were absent in both cases, and the anal in one. There was a right Babinski in one and on both feet in the other case. A marked Romberg in both cases.

*Tabes Dorsalis* (16 cases of varying degree).—Chvostek's phenomenon was present in three, the pharyngeal reflex in three, and Argyll-Robertson pupils in all.

Six were very early cases, giving Chvostek in one, pharyngeal in two, normal tendon responses in the upper extremity, and normal abdominal reflexes, except in one, where the lower abdominal was wanting. One gave a right-sided knee-jerk on reinforcement, with the left absent. In the others they were all absent. The cremasteric was present in one, and the bulbocavernosus faintly positive. The anal was present in three.

In the eight moderately advanced cases, the

reflexes were increased in the upper extremity, and the wrist clonus<sup>41</sup> was present in one case. The upper and middle abdominal were present in four, the lower in two, and the cremasteric was absent in all. There was no bulbocavernosus response and no anal in any.

In two far-advanced cases, the triceps was the only reflex elicitable.

*General Paresis* (5 cases).—Chvostek present in one, and the pharyngeal in two. Argyll-Robertson pupils were present in four, and possibly in the fifth. The upper tendon reflexes were all normal. The upper abdominal was absent in one. The patellar reflex was normal in two, absent in one, exaggerated in one, and in another normal on the left side and rarely present on the right. The Achilles jerk showed two normal, one exaggerated, and two absent. The cremasteric was present in three, and absent in two; and in these two there was no bulbocavernosus or anal response elicitable. Babinski was present on the right side in one case with absent lower abdominal reflexes. In two the Romberg was faintly present.

*Epidemic Cerebrospinal Meningitis* (1 case).—The reflexes were all present, and seemed a little exaggerated. The pupils were dilated with a faint response to light. The patient recovered without any sequelæ.

*Sydenham's Chorea* (6 cases).—The reflexes were difficult to obtain as the patients could not be still. The tendon responses were normal in all, but in four they seemed to relax rather more slowly than normally. In one case they were quite exaggerated on one side, with a faint Babinski and ankle clonus. Their eyes all responded normally. Chvostek's phenomenon was present in one case, and the pharyngeal reflex in all.

*Apoplexy* (3 cases).—The eyes in all these responded normally. In one case, however the right pupil was larger than the left. There was no Chvostek or pharyngeal reflex in any case. All the tendon reflexes on the paralyzed side were markedly exaggerated. The bulbocavernosus and anal were normal in all. The cremasteric was absent in two cases on the affected side. The abdominal were absent in two cases, and faint in one on the paralyzed side. Babinski was present in all on the affected side. Jacksonian epilepsy beginning in the right ankle was present in one case.

*Spinal Cord Tumor* (1 case).—Tumor at 1st dorsal vertebra. The eye responses were normal. No Chvostek sign was present, and no

\*This was probably cerebrospinal syphilis or an early brain tumor.

†The anal and bulbocavernosus seemed to be the first to return after an attack.

pharyngeal. The reflexes of the upper extremity were normal. Upper and middle abdominal were present, and the lower absent. The patellar was spastic, and the Achilles markedly exaggerated with ankle clonus. The cremasteric was absent, and the bulbocavernosus questionable. Babinski was in both feet. Rombergism was very marked.

*Brain Tumor* (2 cases):

1. Cerebellar: Convergent strabismus with a dilated right pupil; increased biceps jerk; triceps and extensors, normal; abdominal, patellar, and Achilles responses were all normal. The cremasteric was very slow; the bulbocavernosus was prompt; anal was absent; no Babinski; Rombergism, present.

2. Left frontal: Eyes normal to light; choked discs; no Chvostek; pharyngeal, present; all right-sided tendon reflexes markedly exaggerated with ankle clonus and suggestion of a Babinski; the left a little exaggerated; the right abdominal reflexes and cremasteric were absent; the bulbocavernosus and anal were prompt; the Romberg could not be tested for, as the child was too ill.

*Maniac Depressive Insanity* (1 case).—In the depressed stage; the eyes were sluggish in their response to light; no Chvostek or pharyngeal reflexes present; difficult to get the abdominal reflexes, due to fat; no Babinski.

*Asthma* (2 cases).—Eyes were normal; no Chvostek or pharyngeal reflexes; all reflexes perfectly normal; no Babinski.

*Miliary Tuberculosis* (1 case).—Eyes sluggish to light; Chvostek and pharyngeal reflexes were both present; all reflexes were a little below normal, but all were present.

*Acute Appendicitis* (4 cases).—Eyes normal in all; Chvostek in one, and pharyngeal in all four; all tendon reflexes were normal or possibly a little exaggerated; the right abdominal reflex was absent, and the left diminished; the right cremasteric was sluggish in all four, and the left normal; the bulbocavernosus and anal were quick and marked in all.

*Chronic Appendicitis* (8 cases).—They gave entirely normal tendon responses throughout; increased abdominal reflexes in six on the right side; the rest were normal. The cremasteric was quicker on the right side in five, and the rest were normal on both sides. The penile and anal were normal in all eight. The Chvostek phenomenon was present in one case, and the phar-

yngeal in four. The eyes were perfectly normal in all eight.

*Lobar Pneumonia\** (19 cases).—Eight cases just before the crisis, six just after and five while the signs were just clearing up.

The eight just before the crisis gave Argyll-Robertson pupils, in three cases, and sluggish pupils in two, with three normal. Chvostek was present in three, and the pharyngeal reflex in two cases. The tendon reflexes were all absent in one case; all but the Achilles and triceps in another; and in the rest they were all very faint and hard to elicit, especially those of the upper extremity. The upper abdominal were absent in three cases, and all the abdominal present in the rest and normal. The bulbocavernosus reflex was absent in all except one, and the anal in four.

The six just after the crisis gave sluggish pupils in three cases and normal in three; Chvostek in one; and pharyngeal in four cases. The reflexes of the upper extremity seemed to vary from time to time, but were faint. The knee-jerks were present very faintly in all, and the Achilles was almost normal in all. There was no Babinski in any. The abdominal reflexes all seemed exaggerated.

The five in which the signs of pneumonia were clearing up, gave entirely normal responses throughout.

*Rheumatic Arthritis* (7 cases).—The tendon reflexes seemed a little exaggerated in five; and in two the great pain on movement seemed to inhibit them. The bulbocavernosus and anal reflexes were exaggerated. The eyes in all cases were perfectly normal.

#### CONCLUSIONS

1. The only conclusion possible, with such a limited number of cases, is that the reflexes are disturbed most by anything causing a disturbance of the central nervous system, and that that disturbance is usually some organic nervous disease.

2. The eye-reactions and other reflexes should be made more use of than they are. They will often be valuable aids in the finer diagnoses.

3. The reflexes and eye-reactions in severe acute toxemias, such as occur in pneumonia, should be studied further.

4. Further study should be made of the relation of pupillary reactions and syphilis.

5. Further work should be done on the bulbocavernosus reflex.

\*I am at a loss to account for the pupillary reactions in lobar pneumonia, except from the acute severe toxemia. Reference is made to it in Sahli's "Diagnostic Methods," p. 1,059.

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## THE VALUE OF THE ORTHODIAGRAPH\*

BY LOUIS M. FIELD, B. S., M. D.

ABERDEEN, S. D.

The purpose of this paper is to give a résumé of orthodiagraphic studies of the heart, made by leading German clinicians, and to add some notes on a few cases in which the author has seen this method of examination used.

In 1900, Moritz invented the orthodiagraph, an instrument for obtaining exact outlines and measurements of internal organs. It is readily understood that in ordinary x-ray photographs, the size of an organ is exaggerated because of the obliquity of a part of the rays. Moritz' instrument overcame this difficulty by using an adjustable aperture permitting only a small area of illumination and thus utilizing only vertical, or nearly vertical, rays. The tube and screen may be moved in any position desired. In this manner, successive points of the borders of an organ may be marked and its exact outline obtained. Its chief use has been in obtaining heart-

measurements. In addition to the advantage mentioned above, it is claimed that with the instrument an operator can map out the borders in both systole and diastole. Such work, however, is difficult and not always satisfactory.

The orthodiagraph devised by Moritz is used for examining the patient in a horizontal position. Groedel adapted it to the sitting, and Levy-Doen to the standing posture. Numerous cases have been examined by each of these methods. Drawings and measurements of both normal and abnormal hearts have been made and compared in order to obtain measurements of typical normal hearts. Tables have been constructed giving average sizes for different groups divided on a basis of sex, age, height, and weight of the individual. Such tables are of great value from an anatomical standpoint, for they give us our best knowledge of the heart's actual size and position. Important data have been obtained concerning the effect produced on the heart's size and position by various conditions, such as

\*Thesis for which honorable mention was accorded to the author in the competition for the Dr. John W. Bell prize of 1913-14, in the Medical School of the University of Minnesota.



inspiration and expiration, exercise, and changes of posture. The anatomical and physiological significance of some of these studies will be considered first and, later, their clinical application.

For the dimensions of the heart-silhouette, Moritz used a set of measurements. They are illustrated in Fig. 1, and are drawn as follows:

1. Mr, greatest distance of right border from mid-sternal line.

2. Ml, greatest distance of left border from mid-sternal line. Mr plus Ml = Tr (transverse diameter).

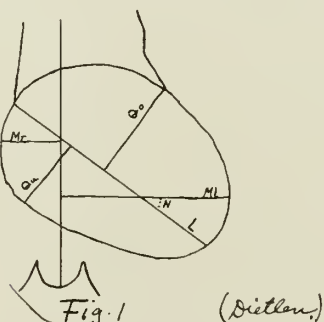
3. L, long diameter, greatest distance from upper right hand corner to apex.

4. Qo (*oberer Querdurchmesser*), perpendicular from upper left border to L.

5. Qu (*unterer Querdurchmesser*), perpendicular from lower right border to L.

Qo plus Qu = Br (Breite).

6. N, angle of inclination of L to Ml.



The size and form of the heart in normal individuals varies with sex, height, weight, age, and the shape of the thorax.

As regards sex: Dietlen, who was associated with Moritz, found by careful comparisons that the heart in the female is smaller than that of the male of equal weight and height. As a rule, it lies more horizontally and its position with relation to the ribs is higher. The ratio Mr: Ml is smaller than in the male. The difference in size he considers due to the greater bulk of muscles and the smaller amount of adipose tissue in the male, as compared with the female of equal weight and height. The other differences are all due to the higher position of the diaphragm in the female, especially on the right side. The heart is thus pushed upward and into a more horizontal position, while the high rounded arch of the right diaphragm tends to crowd it toward the left. In normal adult women, Dietlen gives the average value of Mr: Ml as 1:2.4. In adult males, it is 1:2.1.

The influence of height on heart size may be summed up by saying that, in general, people have large or small hearts according as they are tall or short of stature. Some qualifications have to be made, however. In the case of people not yet of adult age (21 in the male; 17 in the female), the heart is smaller than in adults of the same weight and height.

Differences in weight also are found to be accompanied by corresponding differences in heart size, just as is the case with height. The question arises: Just what influence does each of these factors, *per se*, have on heart size? For instance, given a number of individuals of equal weight but varying heights, what variations may we expect in heart dimensions? Dietlen answers this by saying that in a person with a given weight and proportional height the heart dimensions correspond closely with the measurements taken as averages for that particular weight group. With moderate departures from the proportional height, very slight changes in heart size are found. With decided departures, either above or below the usual height, a much more marked increase or decrease in heart area is found. Weight is the more important factor of the two in the sense that differences in weight are accompanied by more uniform corresponding differences in heart size.

The influence of age is closely connected with the question of height and weight, and their influence. Naturally, one expects and finds an increase in heart area, accompanying growth of the body, most marked in childhood and adolescence. The tables of Quintelet show that usually greatest bodily weight is not reached until between 30 and 40 in the male, and between 40 and 50 in the female. Dietlen and Otten have both shown that heart area also keeps increasing until the fourth decade. After this, however, it still keeps increasing, chiefly as affects the left side, although body-weight as a rule decreases. This fact may be accounted for by the added work brought upon the heart by progressive arteriosclerosis, which usually begins at this time.

Variations in size and shape of thorax seem to affect the position and shape of the heart more than its size. Often, however, it is found that narrow-chested individuals have hearts smaller than the average for their group. On the other hand, people with flat, broad chests often possess hearts larger than the average for their group.

The shape of the heart varies considerably,

even in normal persons, with all the above-named factors equal. Three types of normal heart are often spoken of: the obliquely placed, vertically placed, and horizontally placed hearts. These are shown in Figures 2, 3, and 4, respectively. The horizontally placed heart is more common in women than both the others. The vertical type is very common in young persons. An extreme form of the latter variety is the type known as "drop-heart." This is shown in Fig. 5. It is oftenest found in young persons with narrow thorax. In men the obliquely placed heart is the most common. The heart shape also varies with the position of the body.

Otten gives the following figures for the frequency with which he found each type for the different postures:

	Obl.	Vert.	Hor.
Lying	35%	13%	52%
Sitting	48%	25%	27%
Standing	17%	62%	21%

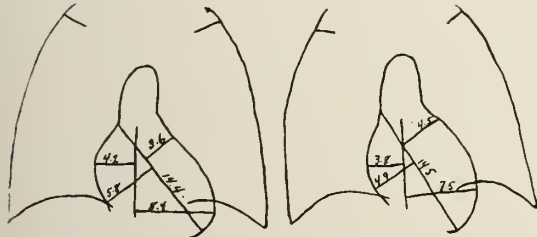


Fig. 2. (Otten)

Fig. 3. (Otten)

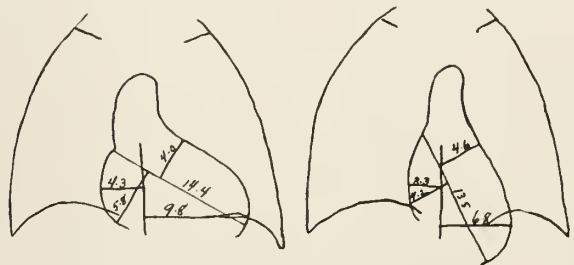


Fig. 4 (Otten)

Fig. 5 (Otten)

Moritz, Otten, and Dietlen all declare that bodily posture affects also the size of the heart, greatest dimensions being found when the body is horizontal, least dimensions when it is vertical. The sitting posture gives intermediate measurements. By taking orthodiagrams from various angles, Moritz has shown that, when the body is vertical, there is a decrease, not only in the heart silhouette, but also in its actual volume. After numerous comparisons of normal and pathological hearts, Dietlen concluded that this decrease is proportional to the ability of the heart muscle to respond to changes in the needs of the body under different conditions. He states that, in general, fresh cases of endocarditis, where the heart muscle is not yet seriously impaired, give the greatest decrease. Next in order come normal hearts. Chronically diseased hearts showed the least, the amount of decrease being inversely proportional to the impairment of the heart muscle. Another fact which he mentions in this connection is, that, on the average, persons showing the greatest in-

crease in pulse-rate on assuming the standing position show the greatest decrease in heart size.

Moritz and Dietlen have constructed numerous tables giving average heart measurements for persons examined in the horizontal position; Groedel has done the same for the sitting posture; and Otten has made out similar tables comparing the heart measurements in both the above-named positions with those for the upright posture. These and other tables may be found by referring to a bibliography on the subject in Vol. 105 of *Deutsches Archiv für klinische Medizin*.

A study of all the factors which influence the size, shape, and position of the normal heart, is important and necessary if we wish to determine whether a given set of measurements indicates a normal or abnormal heart. The measurements of the patient's heart must be compared with

the average normal measurements for persons of the same height and sex, and also with the figures given as maximal normal measurements for the same group. Age, weight, shape of thorax, and type of heart must all be considered in this connection; and one must not jump too readily at the conclusion that, just because a set of measurements differs from that given as the average for a particular group, they therefore indicate a dilated heart. All the factors which influence normal heart size must be considered.

Let us now consider what significance the orthodiagram has from a diagnostic standpoint. It may be said that it has shown itself of value in three ways:

1. It has given us truer notions of the exact size and topography of the normal heart.
2. It offers a useful check on percussion findings, especially in cases where exact percussion is difficult.
3. It is useful in some so-called "border-line cases," where there are mild symptoms of heart

weakness without definite signs of dilatation demonstrable by percussion methods.

Previous to the use of the *x*-ray, our knowledge of the position and shape of the heart was based chiefly on percussion findings and examinations on the cadaver. The former varied greatly with different clinicians, many contending that it was impossible to map out the right border completely. Moritz, in 1907, cited the fact that nine different authors of text-books on physical diagnosis, in common use in Germany (among them, Sahli), differed widely as to the placing of the normal right border. Sahli, for instance, places it very close to the right border of the sternum. Dietlen found that, by careful percussion, he was able to outline the right border, free from error of more than .5 cm., in 89 per cent of all normal cases and in 80 per cent of pathological cases. By percussing with ordinary strength, with the pleximeter finger parallel to the mid-sternal line, he found that the very first slight change from lung resonance corresponded to the right border as determined by orthodiagraph. The right border thus found usually lies close to the parasternal line.

The value of the *x*-ray as a check on percussion findings involves the question of accuracy of ordinary percussion methods. Dietlen's table, given below, shows the results of a comparison of the two methods as applied in the examination of 231 persons. Percussion measurements differing by as much as .5 cm. from those found by orthodiagraph are classed as wrong.

Percussion measurements found correct in percentage:

	Mr	M1	L	Apex
135 Men (ages 15-70) . . .	87	72	76	63
71 Women (ages 15-60) . .	86	69	58	62
25 Children (ages 3-14) . .	96	92	92	90

In judging this table, it must be remembered that many of the percussion measurements classed as erroneous were only slightly so; while others, according to Dietlen's statement involved considerable error. Even if we grant that by skilled clinicians the great majority of hearts can be outlined correctly, or nearly so, there still remain difficult cases where the *x*-ray is needed for accurate measurements. Among these are cases of adiposity, pleurisy, ascites, emphysema, and women with particularly large breasts.

In the border-line cases, the orthodiagraphic measurements, to be of value, must be compared with the figures given in the tables as average for a given class and also with those given as

maximal, for it is evident that there are variations within the normal. When this is done, it is still often difficult to decide whether a given heart measures above the normal or not. In such cases, Otten declares that the shape of the outline often gives the desired information. For instance, early cases of mitral insufficiency, which often give indefinite findings by other methods, are often shown by *x*-ray to have a dilated left auricle, causing a characteristic bulging of the upper left-hand corner of the heart next the aortic arch. Similarly in cases of early aortic valve disease, he finds the ratio M1:Mr increased above the normal and the left heart appears particularly broad and long. Interstitial nephritis is often accompanied by a rounded bulging of the wall of the left ventricle.

Since the orthodiagraph is rather expensive and requires considerable skill for successful operation, other methods of applying the *x*-ray have been suggested with a view toward using rays as nearly vertical as possible. Hirschfelder states that ordinary radiographic pictures of the heart, if taken at a distance of 150 to 200 cm., answer the same purpose as orthodiagraphic tracings, since the exaggeration of size in pictures taken at this distance is so small as to be negligible. Dr. Bissell suggested to me that, with a radioscope, the principle of the orthodiagraph could be utilized by making the area of illumination very small, and thus finding successive definite points in the heart outline until the whole heart area has been mapped out. This method was tried with four cases, all examined in the upright posture. The person examined was directed to hold a piece of stiff cardboard over his chest-wall. On this the points were marked directly with a soft pencil, the operator protecting his hand with a rubber glove. This procedure was changed somewhat in the fourth case, as will be explained later. The upright position has several disadvantages, among them the fact that the apex lies especially low and is hard to map out.

The following cases were examined in Dr. Bissell's office. In this connection, I wish to thank him especially for the assistance and suggestions which he gave me in carrying out the work. It will be observed that in Case 2 the height was very great. Otten gives no figures for this height; consequently those for the nearest group had to be taken and allowance made for this fact in the comparison. Case 4, similarly, was a man of such small stature that, in this instance also, the figures for the nearest group





many cases. The fourth case was examined in the same way except that to the cardboard which he held in front of his chest a pantograph was attached and so adjusted that while one point, which was marked by a lead plug, followed the heart outlines, the other retraced the outline on a paper outside the chest area. This gave much better results, but was somewhat awkward to handle.

I would like to suggest a device which I think would be an improvement on the method mentioned in the preceding paragraph and would make it comparatively easy to use the radioscope for orthodiagraphic purposes. The apparatus is simple, and is shown in Fig. 7.

The larger rectangle is a firm light board with straps to fasten it to the patient's chest. The smaller rectangle, enclosed by clips A, B, C, and D, marks the position of the paper sheet on which the tracing is made. The extensible part, between joints F and G, should be made of light strips of some firm material, as aluminum or hard rubber. All the joints should be as smooth as possible, but not too loose; otherwise the part FG is altogether useless, as it gives no aid in

supporting the point F and does not keep the pencil point at F turned toward the paper, as it should be. The position of the pencil at F should be covered by a plug of lead, or some other metal which will cause a definite shadow that can be easily recognized. FE is a hollow tube used as a means of moving F wherever desired. The tube contains a bar so arranged that pressure on the button E causes a depression of the pencil point at F. The pencil point should be of soft material which will mark easily.

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## ESTIMATION OF THE EOSINOPHILES OF THE BLOOD IN THE DIAGNOSIS OF LUNG CONDITIONS\*

(Cases studied in the private clinic of Dr. George Douglas Head.)

By T. A. PEPPARD, M. D.

MINNEAPOLIS

A. It is the purpose of this paper to show that, in making a differential diagnosis between certain pulmonary diseases,—i. e., tuberculosis, chronic bronchitis, emphysema, bronchial asthma, asthmatic bronchitis,—one may be aided by making a differential leucocyte count to determine the percentage of eosinophiles. The normal differential count is given variously, but the writer has found that normal individuals show results which correspond closely to the percentages given by Miller, of Baltimore, as follows: p. m. n., 63.5; large lym., 7.9; sm. lym., 21.9; trans., 2.8; eosin., 2.7; mast. 0.5.

The making of smears becomes comparatively easy after a little practice, and may ordinarily be made, stained, and 200 white cells counted in not more than fifteen to twenty minutes, so that the count is seen to be a not too laborious procedure for the value to be derived from it.

B. Much interest centers in and about the cells which contain numbers of coarse eosinophilic granules. Their exact place in the family of leucocytes has been, and still is, in dispute, also their true function; and the factors upon which depend their determination to the peripheral blood-stream are as yet not fully determined. As the above figures indicate, it occurs in health variously from .5 per cent to 2 per cent or more. If a figure of 3 per cent be taken as a maximum, any count exceeding that percentage may be said to be an eosinophilia.

The conditions in which an eosinophilia is said to occur are legion. Here are quoted a few: scarlet fever; psoriasis; urticaria; infection with intestinal parasites; trichiniasis; gonorrhea; leukemia; splenic tumors; Graves' disease; emphysema; oxaluria; bronchial asthma; tetanus; chronic bronchitis; in young infants; during menstruation; after coitus; hydatid disease;

\*Read before the Hennepin County Medical Society, May 4, 1915.

TABLE 1

No.	Name	Sex	Age	Wght.	Diagnosis	Eosinophiles	Sputum	Remarks
1	S. A.	M.	.....	.....	Bronchial asthma	Varied from 5.7% to 9.4% at diff. counts.		Urine normal.
2	M. E. A.	M.	38	.....	Hay fever, bronchitis		Many eosinophiles neg. for T. B.	Comes for lung examination. Urine normal
3	M. B.	F.	10	.....	Asthma, chr. bronchitis	13.2%	Neg. for T. B.	Referred for T. B. Von Pir. neg.
4	H. B.	M.	14	.....	Chr. asthma	8.3%		Urine—no alb. few small casts.
5	W. T. B.	M.	44	120 usual 180	Bronchial asthma	6% to 3.8% day before death 0.0%		Urine neg.
6	A. C.	M.	44	.....	Bron. asthma "Hay Fever"	10.9%		Nos. 7, 8, 9 all of same family.
7	R. C.	F.	21	.....	"Rose cold"	5%		Occ. cast in urine.
8	T. C.	M.	51	.....	Bronchial asthma	No increase		
9	W. C.	M.	49	.....	Bronchial asthma	5.5%		
10	S. W. T.	M.	19	.....	Hay fever, asthma	7%	Great increase in eosinophiles, neg. for T. B.	Urine neg.
11	Mrs. H.	F.	35	122	Bronchial asthma, hay fever	1.2%		Urine neg.
12	M. H.	F.	31	.....	Bronchial asthma	13%	Many eosinophiles	Urine neg.
13	W. P. H.	F.	52	.....	Bronchitis		Many eosinophiles, no T. B.	
14	E. S.	F.	22	.....	Hay fever, asthma and bronchitis	3.5%	Neg. for T. B.	Von Pirquet, doubtful.
15	G. L.	F.	34	.....	Bronchial asthma	5.5%		Urine neg.
16	T. G. L.	F.	27	.....	Asthma	Great increase	Many eosinophiles	Urine neg.
17	F. M.	F.	38	160	Bronchial asthma, Graves' disease	9.5%	Neg. for T. B., many eosinophiles	Comes for chest ex., urine neg.
18	S. M.	M.	7	.....	Hay fever, bronchitis	18%	Neg. for T. B., many eosinophiles	Von Pirquet, neg.
19	H. F. N.	F.	43	136	Chr. bronchitis, hay fever	9.3%	Neg. for T. B., many eosinophiles	
20	N. P.	M.	17	.....	Bronchial asthma	15%	Moderate number of eosinophiles	Von Pirquet, neg.
21	A. R.	M.	37	.....	Bronchial asthma	4.8%		Urine neg.
22	H. R.	M.	43	150	Chronic bronchitis	5.4%	Neg. for T. B., some eosinophiles	
23	R.	F.	27	150	Bronchial asthma	1.5%		
24	H. S.	F.	25	.....	Bronchial asthma	7%		
25	W. W.	F.	.....	.....	Hay fever, asthma	7%		
26	T. Z.	M.	7	.....	Hay fever, asthma	2.5%		Von. Pirquet, neg.
27	W.	F.	34	100	Bronchial asthma	10%		Urine neg.
28	F. S. H.	M.	29	.....	Bronchial asthma	8%	Neg. for T. B.	Urine neg.
29	J. W.	M.	55	165	Bronchial asthma	4%	Neg. for T. B., many eosinophiles	Trace of alb. and a few casts in u.
30	D. K.	F.	19	135	Bronchial asthma	8.5%		Urine neg.
31	M. S.	F.	31	100	Bronchial asthma	8.5%		This patient underwent an abd. operation to relieve her.
32	E.	M.	54	160	Bronchial asthma	7.4%		Tr. of alb. and an occ. cast.
33	L.	F.	40	150	Bronchial asthma	8.5%	Referred for a cardiac Neg. for T. B.	Asthma, heart neg. Referred for Empyema

In this series of 33 cases there is seen to be only three counts below 3 per cent. These are 2.5 per cent, 1.5 per cent, and 1.2 per cent. The average count was 7.5 per cent.

osteomyelitis; leprosy; ankylostomiasis; ascarides; oxyuris; phosphoric poisoning; syphilis (in conjunction with lymphocytosis); bone-tumors; sexual neurasthenia; uremia; after injections of nuclein, pilocarpin, camphor, and tuberculin. Thus it is seen that, according to reports, an increase in eosinophiles is observed in many and varied conditions. Here, as elsewhere, some of these statements have crept into the literature without sufficient confirmation; but, in using this diagnostic aid, one must bear in mind the possibility of a complicating condition which might interfere with the true interpretation of an eosinophilia. However from a practical standpoint confusion need rarely occur in the diagnosis of lung diseases. The true incidence of an

eosinophilia probably depends on some still undiscovered, single principle instead of occurring in any haphazard manner as might be suspected.

C. In practically every list, one always sees mentioned, as a cause of eosinophilia, bronchial asthma; and to this we would add a certain associated condition, "asthmatic bronchitis," that is, a recurring bronchitis of the smaller tubes not necessarily associated with true asthmatic attacks. With a history including cough, expectoration, anorexia, loss of weight, and weakness, one is justified in suspecting, and certainly he must rule out, a pulmonary tuberculosis. It is not the exception for the observer to be left in doubt, after a painstaking physical examination, as to the etiology and exact pathology of



TABLE 2

No.	Name	Sex	Age	Wght.	Diagnosis	Eosinophiles	Sputum	Remarks
T 1	W. K.	M.	40	140	Pulmonary tub. ....	0.4%	T. B. present. ....	Progressive.
T 2	M.	F.	23	141	Pulmonary tub. ....	0.4%	Trans. 10.4% ....	Improving on tuberculin.
T 3	T.	F.	23	170	Pulmonary tub. ....	2.9%	.....	Gained 40% under treat. 7 mo., doing splendidly.
T 4	C.	M.	45	110	Pulmonary tub. ....	0.0%	.....	2 weeks before death.
T 5	R. T.	F.	19	107	Pulmonary tub. ....	5%	.....	.....
T 6	B. B.	M.	51	142	Pulmonary tub. ....	0.0%	.....	.....
T 7	M. S. S.	F.	22	.....	Pulmonary tub. ....	3.4%	.....	History of hay fever each fall for 6 or 7 years.

In this series are included representative cases of pulmonary tuberculosis with explanations. Case T 5 and T 7 and 3 were referred to in the text.

TABLE 3

No.	Name	Sex	Age	Wght.	Diagnosis	Eosinophiles	Sputum	Remarks
B 1	C. L. F.	M.	23	.....	Chr. bronchitis, emphysema. ....	2.3%	No eosinophiles, no T. B. ....	Occ. cast in urine.
B 2	F. B.	M.	8	.....	Chronic bronchitis. ....	No increase. ....	.....	Von Pirquet, neg.
B 3	C. R. F.	M.	36	No loss	Bronchitis. ....	2.3%	.....	Trace of alb., occ. cast.
B 4	M. H. G.	M.	43	138	Bronchiectasis. ....	0.5%	Many eosinophiles, no T. B. ....	Neg. to subcutaneous of tuberculin.
B 5	L. H. M.	F.	40	100	Asthma with nephritis. ....	0.0%	Neg. for T. B. ....	Comes for chest exam., urine neg.

In this series are included a few cases of simple bronchitis, emphysema, bronchiectasis, which shows the usual percentages obtained.

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the condition present. One must then resort to further tests, i. e., sputum-examination, tuberculin tests (subcutaneous, von Pirquet), and determine the percentage of eosinophiles. This percentage, and its relation to all forms of tuberculosis has been worked out thoroughly and accurately. In a case with an active process with symptoms mentioned above, one can be sure that the smears will show not any or a very small number of eosinophile cells. Under treatment, the condition becomes arrested, the patient gains in weight, and one may expect to find these cells again in the blood-stream in normal, or even perhaps slightly increased, percentages (see Case T3). Occasionally, a confusing finding may be obtained,—i. e., an increased percentage of eosinophiles occurring in a tuberculous infection. As illustration, see Case T5, five per cent here; also Case T7, eosinophiles, 3.4 per cent. The latter patient gives a history of hay fever each autumn for six or seven years. This might occur where a tuberculosis was complicated by a true bronchial asthma, or vice versa.

In general, this series shows a relation between weight and the eosinophile count.

Case 5, a patient with true bronchial asthma, usual weight 180 pounds. First count showed 6 per cent; a year later, two months before his death, he weighed 120 pounds, and smears showed 3 per cent eosinophiles. A count taken during an attack the day before his death, showed no eosinophile cells. Herrick suggests, as do others, that the lowering of the eosinophile percentage occurs as a part of and dependent upon the general loss of weight; however, this does not always obtain, as illustrated by Case 35. Weight 100 pounds, 10 per cent eosinophiles. Nearly all of the tabled cases hold some significance, and we cite a few as argument.

No. 24. S. M., male, age 7. Comes for cough, run down in weight, some expectoration, two attacks of pneumonia, pain in the chest. Diffuse râles heard over left chest. After a careful examination the clinician was unable to rule out a pulmonary tuberculosis, in fact he made that tentative diagnosis. Von Pirquet was done, smears taken, sputum examined. The latter showed no tubercle bacilli, but contained excessive numbers of eosinophile cells. The von Pirquet was entirely negative; and the count showed 18 per cent eosinophiles. It was this last finding which determined a diagnosis of "asthmatic bronchitis."

No. 3. This patient was referred for pulmonary tuberculosis. Practically all of the patients presented

themselves for lung examination, they themselves suspecting lung trouble which means to them tuberculosis. In this case sputum proved negative; von Pirquet reacted negative. An eosinophilic percentage of 13.2 established a definite diagnosis.

No. 26. Patient came to have tuberculosis ruled out. Some blood in the sputum. Von Pirquet was negative. Eosinophiles, 15 per cent, this excluding a tuberculosis.

No. 22. Comes for chronic cough. Some coarse moist râles and fine sibilant râles with sputum negative for tubercle bacilli and smears showing 9.5 per cent eosinophiles. Tuberculosis was ruled out on these findings.

No. 25. Comes for cough, weakness, and loss of weight. Sibilant and sharp crackling râles. Sputum, negative for T. B., but contained many eosinophile cells. Count, 9.3 per cent.

No. 46. Referred for empyema following a supposed pneumonia. History was obtainable of paroxysms of

dyspnea. Sputum was negative. Diffuse lung findings of sibilant and sonorous râles, hyperresonance. Differential 8.5 per cent eosinophiles.

A point of interest is noted in that, in practically every instance in securing the smear, the patient was noticed to bleed very freely, a smaller puncture than usual being necessary to obtain the drop of blood.

D. Truly pathogomonic signs and symptoms are few. The results of this laboratory procedure certainly seem to justify its more general use in this connection. Given a doubtful case, with other doubtful tests, a low count of the eosinophiles would be *evidence* on the side of the tuberculous condition. On the other hand a count of 4 to 6 per cent or more would be testimony against the lesion being caused by an active tuberculous process.

## RECOVERY FROM PARALYSIS FOLLOWING DECOMPRESSION OF THE SPINAL CORD\*

E. H. BECKMAN, M. D.

The Mayo Clinic

ROCHESTER, MINNESOTA

Surgery of the central nervous system is coming to be recognized as a branch of surgery in which the results may be compared favorably with those secured in many of the other special lines of surgery. Much of the haze of uncertainty which surrounded the diagnosis and treatment of diseases of the central nervous system has been cleared away by the brilliant light shed upon it by such investigators as Horsley, Sherrington, Cushing, Frazier, Spiller, Mills, and others. Investigation and experimentation have led surgeons of ability to attempt to cure by surgical means many lesions of the central nervous system formerly considered hopeless.

As a general rule, laparotomies and operations on the extremities which fail to reveal the pathologic lesion diagnosed or which disclose a neoplasm that cannot be removed, are likely to be considered as failures. Yet all surgeons are familiar with many instances of relief from symptoms and retardation of the growth of malignant abdominal conditions following an exploratory laparotomy. The rapid cure in tuberculous peritonitis that sometimes follows an exploratory laparotomy, is an illustration. In performing operations on the brain the same relief of symptoms, and an occasional cure when pathologic lesion is demonstrated, are so common that the operation known as decompression is perhaps the

one usually performed on that organ. In this instance, however, the relief is believed to be due to the removal of pressure; yet in most instances no cerebral hernia develops, and the escape of cerebrospinal fluid must be of short duration. Is it not reasonable to suppose that the same factors that produce the improvement following an exploratory laparotomy may also assist here?

While the operation of decompression in brain surgery has become a recognized procedure, its application to the surgery of the spinal cord is more recent. The relief of symptoms following decompression of the spinal cord is at times as wonderful, and the beneficial results obtained as surprising, as that obtained in cerebral decompression. When a diagnosis of tumor of the spinal cord has been made on a patient with root pains, level symptoms, disturbed sensation, and paralysis, and the operation fails to reveal the supposed tumor, it is truly humiliating to the surgeon; but if after such an experience the pain disappears, the paralysis leaves, and the sensation returns, the result is almost as gratifying to the surgeon as to the patient.

I wish to present two cases—one with no demonstrable lesion, the other with possible tumor—to illustrate the beneficial results that sometimes follow spinal decompression:

CASE 1.—(A67505.) Male, aged forty-nine. Occupation, merchant. Examined May 6, 1912. Previous history, negative. Patient had suffered for several years

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with indefinite pain about the waist and down the thighs and legs. Occasionally the pain was severe for several days. He was operated on for appendicitis six years ago, during a periodic attack of pain which was believed to be appendicitis. He has had the same attacks many times since. One year ago weakness in the right leg was noticed, which disappeared in two or three weeks. Six months ago gradual weakness appeared in the left leg. Five months ago there was some swelling in both legs. Three months ago the left leg became so weak a cane was used in walking; and for the past two months, because of the weakness in both legs, he has been unable to stand. He is now confined to a chair, and cannot move his legs about voluntarily. He suffers continuous pain in the lumbar region, which radiates around the body and down the thighs; there is involuntary contraction of the muscles of the thighs and legs, associated with pain when the legs stiffen. Some difficulty is noted in starting urine, but no actual loss of bladder control.

There is disturbed sensation below the level of the second lumbar vertebra, and heat and cold are not recognized below this level. The knee-jerks are much exaggerated. Ankle-clonus and Babinski's sign are present. The Wassermann reaction of blood and spinal fluid are both negative. Diagnosis: tumor of the spinal cord.

On May 16, 1912, laminectomy was performed, and the arches of the fifth, sixth, seventh, and eighth dorsal vertebrae were removed. The dura was opened, but no lesion found. The diagnosis of tumor seemed so positive that on May 24 the arches of the tenth, eleventh and twelfth dorsal vertebrae were removed, but no lesion was discovered except a small lipoma lying on the dura. This apparently caused some pressure, but could not account for the paralysis. The cord appeared normal, though congested. The wounds healed primarily. The patient suffered severely for several weeks from the spastic condition of the legs, which was associated with severe pain. At the present time, two years and seven months since operation, he is absolutely free from pain, has regained normal strength in the thighs and legs, and is able to perform all movements. He gets about on his hands and knees, and rides horseback. We have not been able to examine this patient, but from reports the only reason he is not able to walk is on account of the contractions which took place while he was suffering from the spastic condition. Undoubtedly these contractions could be relieved by orthopedic measures and he would be in a normal condition.

CASE 2.—(102880.) Single, male, aged thirty. Occupation, a wood worker. Examined March 23, 1914. Seventeen years previously, while playing football, the patient injured his back and was unconscious for about two hours, and had partial loss of power in both legs for two weeks, so that he was unable to walk. The bladder and bowels were not involved. He entirely recovered, and was able to play football in a month. One year later he noticed a slight drag in his left leg, which seemed to be a loss of power in the muscles without any disturbed sensation. An orthopedist told him that the second lumbar vertebra was dislocated. At this time there was severe pain of a lancinating character, which extended down the spine from the lumbar region and into both sciatics. Three years later, in 1901, there was still some loss of power in the left foot, and he also had sudden severe pain in the back under the scapulae, which seemed to produce a spasm of the muscles of the

back. He had a temperature of  $101^{\circ}$  for three days, was in the hospital for six weeks, and part of the time morphin was required to control the pain. After that he was in his usual health until four years ago, when his left leg became weaker, and he had pain in the left hip and knee. From this time on he has continued about the same, with pain in both the left and right thighs, knees, and legs, with gradual loss of power of both legs. The bladder control is weak but not entirely lost. In December, 1913, the patient had sudden severe pain between the shoulders and the back of the head, which caused a retraction of the head. The diagnosis at that time was meningitis. The patient thinks he has some increase of temperature, but was in his usual health in two weeks.

*Physical Examination.*—Patient is small and thin. General examination was negative, with the exception of possibly a slight deformity at the first and second lumbar vertebrae. He is not able to walk, and is unable to lift either foot from the floor, although the feet and toes can be moved. The knee-jerks are exaggerated, and he has marked ankle-clonus. The spine seems rigid in the upper lumbar region. Tactile sensation, as well as the sense of heat and cold, is markedly impaired below the level of the second lumbar vertebra. The sensation is almost if not completely lost in the left thigh and leg, but not so much impaired on the right. The spinal fluid is negative, and the Wassermann reaction from the spinal fluid is negative.

On April 13, 1914, a laminectomy was performed, and the arches of the ninth, tenth, and eleventh dorsal vertebrae removed. The dura was tense, but not bulging. On opening the dura the entire canal was found filled with dilated blood-vessels which resembled an angioma. One of these vessels was accidentally punctured in opening the dura, and the hemorrhage was severe. In order to control this hemorrhage it was necessary to pack the opening in the dura with a strip of gauze. The bleeding was easily controlled in this way. The dura was not stitched, but the muscles, fascia, and skin were closed with catgut. The gauze pack was removed on the fourth day; and the wound healed primarily. The patient remained under observation until May 20, thirty-seven days. Examination at this time showed that sensation was the same as before the operation. The bladder control has been almost perfect since the operation. There has been marked improvement in the motion of both legs; the patient can flex and extend the knees, and can stand alone, and walk several steps without support. The spasticity has also improved.

On June 20, sixty-seven days after operation, the patient wrote as follows: "I have not had any pain since I returned. I am improving nicely so far as gaining strength is concerned, as I am now able to go around without my crutches considerably and think I will be able to do away with them entirely in a short time. I have some twitching in my left leg, especially at night." On September 27, five and one-half months after the operation, the patient wrote: "I am doing nicely so far, and have been able to return to my work at last. I have not had a single pain of any kind except a burning sensation in my left thigh, which starts just above the knee and spreads over the front. There is also some slight twitching in my legs. This is only occasionally, and may be absent for several days at a time."



It is impossible to say whether these patients are cured or only temporarily improved, but the results have already justified the operation.

## DISCUSSION

DR. GEORGE A. MOLEEN (Denver, Colo.): In the presence of evidence of pressure within the spinal cord, decompression should theoretically offer a great deal. If it should be a tumor, however, the decompression is only temporary, as in a case which as yet has not been demonstrated, which was operated on in Rochester, and which had previously come under my observation, in which the symptoms were somewhat indefinite.

There were some symptoms of involvement of the posterior tracts; the muscular sense was not as well defined as it should have been; the reflexes were slightly altered as to degree; and the plantar reflexes were not certain, namely, at times suggesting extensor and at others flexor.

The diagnosis was rather difficult. The report, as the newspapers had it, was of a miraculous recovery from a paralysis. The paralysis was not complete, however, when I observed the case, and was rather a disturbance in muscular sense than a loss of power. Upon inquiry it was stated that the case presented at operation a cystic tumor, and when the cord was incised a clear fluid escaped from a median-line incision.

The case at the present time does not show as complete a result as perhaps one might have looked for from spinal-cord decompression. The case is now paralyzed, and all forms of sensation completely lost below the line of operation.

These are in direct relation, I think, with a good many attempts which have been made; and I do not think the results greatly differed from those of many operators, nor do I believe that they are so different from the attempts which have been made by Victor Horsley in removal of adhesions of the dura in cases of chronic pachymeningitis of specific origin.

Certainly, in cases of edema in the spinal cord, decompression should be of service, and also in those cases where we have definite neoplastic or hyperplastic dura.

We should also remember that in cases of secondary or hyperplastic syphilitic meningitic or meningo-myelitic lesions we do have edema at the spinal roots, also the membranes are thickened in a great many of these cases. I believe, due to hyperplasia and edema of the membranes, especially around the posterior roots, and consequently there are the root-pains from this source. It would be well, of course, if it were possible, to operate the entire length of the spinal cord under those circumstances, and in that way decompress the posterior roots, which are particularly, I think, the source of damage and the source of pain.

A great deal is to be gained from the modern refinements in diagnosis, and I think in all of these cases careful Wassermann reactions, confirmed by the lymphocyte count and the globulin reactions, should be done, and then we would know whether the hyperplasia was really due to a specific cause or whether it was due to some neoplastic cause. I think the edema has often been overlooked and a diagnosis of neoplasm made in the cases where the decompression has been done.

DR. BECKMAN (closing): The more experience one has in the diagnosis of lesions of the spinal cord, as has been pointed out by Ellsberg, the more one finds that the classical symptoms of tumor of the spinal cord are not always present, and that, in spite of the absence of certain of these classic symptoms, an operation is at times justifiable. Tumors of the spinal cord have been found in the absence of root-pains, and many of the other signs of tumor.

Of course, no one would advocate an operation of this kind without having made as accurate a diagnosis as is possible. But the point is, that, in spite of the most accurate diagnoses that can be obtained by present methods, there will be a great many mistakes, and consequently in some of these cases where there is a great deal of pain, where we are satisfied that there is a distinct lesion of the cord, with the symptoms localized to a definite area, an exploration is advisable, and, if the suspected tumor is not found, much relief may come from the decompression.

# THE JOURNAL-LANCET

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W. A. JONES, M.D., EDITOR

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SEPTEMBER 1, 1915

## THE MINNESOTA STATE MEDICAL ASSOCIATION

The next meeting of the Minnesota State Medical Association, which takes place in Rochester, Minnesota, September 29, 30, and October 1, promises to be a lively meeting. The program appears in another column. It may be assumed that clinics will be given at Rochester, so that no one need fear an uninteresting and unprofitable session.

The hotel capacity at Rochester is quite sufficient to meet all demands, and all who attend will find comfortable accommodations. The new hotel, which is now being built at Rochester, or rather the new convalescent home, will doubtless be ready at the time of the meeting.

The date of the meeting is one that will be delightful. At that time of the year the hot weather will be over, motoring will probably be good, and as Rochester is rather centrally located, the distance will not be great from the principal points of the State.

Dr. John Rogers, of St. Paul, is the President this year, and with the present House of Delegates, the business end of the meeting will be interesting and edifying.

## NOVOCAIN AND ITS DANGERS

For some time novocain has been used without much hesitancy, but the dilution of the drug has not always been consistently carried out. The result has been a number of danger-points which have unexpectedly occurred. This drug differs perhaps in no wise from many other drugs applied to unknown individuals. Even a simple drug may have a disastrous effect, while a complex drug, like novocain, not infrequently is very insidious, and sometimes is harmful in individuals whose constitutions react promptly to poisons of any degree. Dentists have used novocain with a great deal of comfort to their patients, but occasionally it produces a sudden syncope, exhaustion, and what seems like a very typical heart-failure; even when small doses are employed, the results may be very grave. It has been used in general surgery, and applied very widely, even in abdominal operations.

The success of novocain lies in the proper dilution, and its distribution in the superficial tissues. There it seems to do less harm than when introduced into the mucous membranes. There have been very few reports of any complications when novocain has been injected under the skin, but there are a number of cases recorded in which novocain injected into the mucous membrane has produced a rather startling group of symptoms.

In the last issue of the *Journal of the American Medical Association*, an abstract from *Zentralblatt für Chirurgie*, Leipzig, for July 10, Morian declares that irritation of the kidneys is by no means an uncommon climax after the application of novocain for local anesthesia. He declares that from five to ten per cent of cases in which he used it, albumin became evident in the urine in a few hours after the injection of novocain, and could be detected afterwards up to a maximum of forty-eight hours. The output of the urine does not seem to be materially modified, but sometimes it is irregular and scanty. Other formed elements are not infrequently present in the urine. The appearance of the albumin did not seem to be dependent on the amount of novocain used, nor did the site of the injection make any difference. Vomiting sometimes occurs several hours after an operation under novocain. Morian does not believe that the albuminuria which novocain caused was due to fluctuation of the blood-pressure.

The treatment for novocain poisoning seems to call for a sudden and increased supply of

blood to the brain; and for that reason patients are inverted and stood on their heads, tipped over to such a degree that the blood flushes the cerebral circulatory system. Stimulants like atropine and strychnia may be needed, and such other measures as serve to quicken the circulation. Hot packs or irritative massage are also helpful.

So far as we know no deaths have been reported other than perhaps the deaths that occur during surgical operations, where something else may be described as the cause, when as a matter of fact the novocain may be the real element of danger. Novocain is used in infiltration anesthesia in 0.25 to 0.5 per cent solution, or it may be used in from one to two per cent solutions when it is instilled or injected. Merck gives the dose as up to eight grains, that is, approximately one-half gram, but everyone who uses this powerful local anesthetic must consider the possible dangers in individual cases.

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#### AN AWARD OF MERIT

Surgeon-General Blue, Chief of the United States Public Health Service and President-elect of the American Medical Association, has been awarded a gold medal by the trustees of the American Medicine Gold Medal Award, in recognition of his public-health service. Dr. Blue is considered the one American physician who has done most for humanity in the domain of medicine in 1914, and his friends in California, as well as his friends all over the United States, are unanimous in their praise of his work in national health and sanitation.

This sort of decoration carries with it much more honor than any possible decoration that can be conferred by king or monarch in Europe. We hear of various naval and army officers who have been decorated with crosses of various orders for their successes in maiming or killing people; but it seems a long cry from that sort of an honor to the honor which comes to Surgeon-General Blue.

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#### THE NEW UNITED STATES PHARMACOPOL RECOMMENDATIONS

At a meeting in Washington not long ago, the committee who has in charge the revision of the United States Pharmacopeia, eliminated from its text both whiskey and brandy. The vote was a close one (twenty-six in favor, and twenty-four against); but the "drys" won, and the future

pharmacopeias will probably not mention whiskey or brandy as medicinal agents. This is quite the proper stand for a United States body of this sort to take, and probably will be applauded by prohibitionists, local optionists, and doctors alike. Unfortunately, however, alcohol still remains as a medicinal agent, and, fortunately, it will always remain so because of its power to extract from drugs their essentials and alkaloids. No tinctures can be made without alcohol, that is, no standard tinctures; consequently it will always hold its place in medicine. The abolition of whiskey and brandy from the Pharmacopeia does not mean the elimination of intoxicants, for the old inebriates have awakened to the fact that alcohol in its raw state is a very good substitute for whiskey and brandy.

For years many of the farming communities have consumed large quantities of alcohol, sometimes in its diluted state and not infrequently in its raw state. The habit, however, is not confined to the farmer; but it is gradually making its way into the city, and still more seriously, invading the so-called social class, who drink because they think it is smart. The result of this consumption of alcohol will, in time, be disastrous unless some check is put upon the druggist or saloon-keeper in some manner. It will always be possible for the unscrupulous patient to secure a prescription from an unscrupulous doctor for a quantity of alcohol, and it is quite likely that many druggists will continue to sell the drug without a prescription. The displacement of whiskey and brandy from the druggist's armamentarium will sadly interfere with some of the business side of the druggist's life, for it is commonly accepted that many drug-stores are high-grade types of "blind pigs." They belong to the so-called "white bristle drys." However, the better class of druggists are conducting their business in a strictly legitimate manner, and are not selling drugs that are proscribed by law; neither do they sell intoxicants when they know they are purely for intoxicating purposes.

This revision of the Pharmacopeia will doubtless affect many of the druggists in the so-called prohibition states, as it will be impossible to prevent the shipping of alcohol for medicinal purposes into a dry community. The responsibility then rests with the druggist, and if the same restriction were put upon the use of alcohol as is now placed by Federal authorities on opium, cocaine, and their derivatives, it would be a comparatively easy matter to keep a community



sober; otherwise they will get gloriously drunk on the crude stuff.

Fortunately, the people are familiar with the difference between wood alcohol and grain alcohol. Wood alcohol, of course, is highly poisonous, and even a small quantity, one or two drams, is sufficient to cause either serious illness or speedy death. No doubt some enterprising chemist will devise a distilling apparatus that will increase the output of alcohol, at the same time removing its dangerous properties; but that will take a good many years before it will be safe to drink anything known as alcohol.

#### DEATH OF NOTED PHYSICIANS

THE JOURNAL-LANCET regrets that it has not paid due deference to the death of some of the noted men of the world.

On the 5th of May, in London, Sir William Richard Gowers, M. D., died after a long period of invalidism. Sir Gowers is probably one of the most noted neurologists that the world has known, and his books have been more eagerly sought and read, and his conclusions more fully accepted, than those of most any other writer.

When he wrote his famous two volumes on "Diseases of the Nervous System," he exhausted his energies; and it is said by his friends that, after the long effort, his voluminous research, and his careful editing of these two books, he broke down nervously. He continued, however, to do his work in the National Hospital in London for some time, but with diminished energy. He retained, however, his brilliancy of mind, and his keen insight into neurological subjects for a long time after the completion of his great works. Students who have visited Gowers Clinic in London, and who have made the rounds with him in the National Hospital, will remember him as a kindly, courteous man, with an enormous amount of energy, and the ability to impress others with an interest in the work that he has maintained at such a high standard.

Notwithstanding the numbers of neurologists who remain in London and the British Isles, Gowers still holds a conspicuous place in the foreground. At the present time the neurological field has been somewhat depleted by the war. Many prominent neurologists of London are serving as surgeons and physicians at the front, and doubtless their work and study of neurology and psychiatry among the wounded and those engaged in battle, will be of great value to the world when the war is over.

The press of today announced that Dr. Paul Ehrlich, discoverer of salvarsan, and co-discoverer of the antitoxin for diphtheria, died suddenly on August 20 of heart disease, at Bad Homburg, at the age of sixty-seven years. Dr. Ehrlich has perhaps done as much as any one man to relieve the victims of syphilis, and his six hundred and six experiments with arsenical compounds puts him among the great chemists of the day. Dr. Ehrlich, although not the chief discoverer of salvarsan, was the man who really brought it prominently before the medical public. His death, however, will not interfere with the making of salvarsan, nor will it interfere with the purchasing of the drug—the war has done that sufficiently now, and everyone who has used salvarsan has appreciated the difficulties of getting the compound, because the bulk of it is made in Germany. Somehow, enough is gotten over the line to fairly supply the demand; but it is rumored that even this supply will be soon exhausted. Its name and Dr. Ehrlich's will always be joined together as one great discovery and one great discoverer.

Not less noted is the death of Dr. Charles E. Finley in Havana, Cuba. Dr. Finley was the man who discovered the mosquito origin of yellow fever, and who made it possible to eradicate yellow fever from Cuba. Many others have given their lives in the experimental work that Dr. Finley has so carefully followed out; and among the early workers there has been recorded deaths during the experimental stages with yellow fever and the mosquito.

#### INJUSTICE TO THE INDIAN AND THE INDIAN MEDICAL SERVICE

We published in our last issue a paper on "The Indian Medical Service" by Dr. P. F. Rice, physician at the Standing Rock Indian Reservation. This paper is a severe arraignment, though expressed in courteous language, of the Indian Medical Service of the Government. The contemptuous estimate put upon medical service at the Indian agencies by the Department of the Interior was set forth by Dr. Rice. Its result is clearly shown in the disgraceful disease conditions among the Indians today, conditions that can be bettered only by the expenditure of large sums of money, but which might have been prevented by an intelligent, non-political estimate of the value of medical service.

Dr. Rice quoted from an Indian Service circular showing that the usual entrance salaries for

physicians are from \$900 to \$1,000 a year, with "quarters, light and fuel." We take it that "quarters, light and fuel" are an essential (minor or major?) part of the salary.

Dr. Rice also quoted the much higher prices paid physicians in other Government service, as well as the salaries, also higher, paid veterinarians, and other persons. As he did not seem to understand the differences, or discriminations, he addressed a note of inquiry to the Commissioner of Indian Affairs at Washington. The Assistant Commissioner, under date of Nov. 13, 1914, refused to furnish the information. We have heard of such refusals before—in Russia.

A few days ago we sought the same information from the same source. We obtained it. We do not know why. It came from the Assistant Commissioner. Here it is: "The *usual* entrance salary of physicians in the Indian Service is from \$1,000 to \$1,200 per annum, including quarters, fuel, and light. Field Dentists and Special Physicians receive \$1,500 and \$1,600, respectively, including traveling expenses. Inspection Officers receive from \$2,000 to \$3,000 per annum, including traveling expenses."

The italics are ours. They are used to give comfort to prospective applicants for places in the Indian Service. Italics put emphasis upon this word, and give hope of the *unusual* salary—to be hoped for. As if to remind us of our humble calling, the Assistant Commissioner added other information, which we did not seek and which, we confess, hurts us. "Field Dentists" and "Inspection Officers" receive \$1,500 and \$2,000 to \$3,000, respectively! And "Field Dentists" and "Inspection Officers" begin with capital letters. We cheerfully concede that their salaries justify such deference. But "physicians in the Indian Service"! The small, the lower-case "p" tells the story.

Lo, the poor Indian!

## MISCELLANY

### PROGRAM OF THE MINNESOTA STATE MEDICAL ASSOCIATION

SEPTEMBER 29

House of Delegates meets at Medical Library at 2 p. m.

SEPTEMBER 30, 9 A. M.

PRESIDENT'S ADDRESS—

Dr. J. T. Rogers - - - - - St. Paul

### Radium in Dermatology

Dr. S. E. Sweitzer - - - - - Minneapolis

*Abst.*—Action of radium on the skin. Shape of applicators and technic of application. Amount of radium necessary. Diseases especially adapted to radium therapy; naevi, epithelioma, lupus and erythematosis. Case-reports.

Discussion to be opened by Dr. G. P. Crume, Minneapolis.

### Syphilis

Drs. N. Linneman and E. L. Tuohy - - - Duluth

*Abst.*—Analysis and grouping of a considerable number of cases. Relation of syphilis to other pathological states. Deductions based upon the results of various forms of treatment.

Discussion to be opened by Dr. G. B. Eusterman, Rochester.

### Clinical Observations in Luetic Disease of the Heart and Aorta

Dr. R. D. Mussey - - - - - Rochester

*Abst.*—Report of 59 cases of luetic disease of the heart and aorta: aortitis, 18; aneurysm, 25; heart, 11; mediastinal thickening, 5. Main symptoms of each group and the physical findings in a general way. Methods and results of treatment.

Discussion to be opened by Dr. S. Marx White, Minneapolis.

### Autografts in Infected Fields

Dr. A. A. Law - - - - - Minneapolis

*Abst.*—It is contended that autogenous transplants show an appreciable degree of resistance to chronic tubercular or pyrogenic infections, or where the host has established immunity to the infective process, therefore, in exceptional cases, autografts are not absolutely contra-indicated in such old infected fields.

Discussion to be opened by Dr. J. W. Little, Minneapolis.

### Infections of the Hand and Fingers

Dr. W. F. Heise - - - - - Winona

Discussion to be opened by Dr. A. R. Colvin, St. Paul.

SEPTEMBER 30, 2 P. M.

Address on Surgery: Open Air Treatment in Surgery

Dr. J. W. Markoe - - - - - New York

The Examination, Preparation, and Care of Surgical Patients

Dr. C. H. Mayo - - - - - Rochester

Discussion to be opened by Dr. A. Maclaren, St. Paul.

Laminectomy under Local, not Spinal, Anesthesia

Dr. A. C. Strachauer - - - - - Minneapolis

Discussion to be opened by Dr. C. R. Ball, St. Paul.

### Local Anesthesia

Dr. L. E. Daugherty - - - - - St. Paul

Discussion to be opened by Dr. A. Maclaren, St. Paul.

## Clinical Observations and Deductions of Some Obscure

## Infections

Dr. A. E. J. Sohmer - - - - - Mankato

*Abst.*—Infectious origin, often obscure, of some acute, subacute, and chronic diseases, such as arthritis, endocarditis, appendicitis, gastroduodenal ulcer, pancreatitis, colitis, pyelonephritis, bronchial asthma, chorea, and septicaemia. Nidus of infection. Relation of thyroid gland to infections. Prevention of recurrence. Factors upon which a complete cure is dependent.

Discussion to be opened by Dr. H. P. Ritchie, St. Paul.

## The Prone Position and Its Uses

Dr. M. M. Ghent - - - - - St. Paul

*Abst.*—Various conditions, such as resuscitation of the new-born, bronchopneumonia in children, and one other condition never before described, can be best treated in the prone position.

Discussion to be opened by Dr. W. H. Magie, Duluth.

## Race Betterment

Dr. L. E. Claydon - - - - - Red Wing

*Abst.*—Euthenics and eugenics defined. Our responsibility to the community and the State for prevention of disease and the improvement of social conditions.

Discussion to be opened by Dr. E. H. Bayley, Lake City.

OCTOBER 1, 9 A. M.

Address on Medicine: Prophylaxis and Treatment of the Nephritides

Dr. M. H. Fischer - - - - - Cincinnati

## Embryology and Medicine

Dr. C. M. Jackson - - - - - Minneapolis

*Abst.*—Importance of embryology as a fundamental medical science. Comparative value of experimental versus morphological methods of study. How the practitioner may co-operate with the laboratory investigator in advancing our knowledge of human embryology.

Discussion to be opened by Drs. T. G. Lee, Minneapolis, and L. B. Wilson, Rochester.

## An Analytical Review of 400 Pneumonias

Dr. J. G. Cross - - - - - Minneapolis

*Abst.*—Pneumonia is not decreasing. Statistics show less advance in treatment than in cancer and tuberculosis. Mortality by age-periods. Percentage of recoveries by lysis; by crisis. Date of crisis. Internal symptoms. Urine findings. Location of consolidation. Leucocytosis.

Discussion to be opened by Dr. J. E. Hynes, Minneapolis.

## Medico-Surgical Management of the Diabetic Patient

Dr. D. M. Berkman - - - - - Rochester

*Abst.*—Report of a year's surgery on diabetic patients. Routine method of preparation for, and care after, operation. A probable value of the determination of blood sugar percentage.

Discussion to be opened by Dr. J. S. Gilfillan, St. Paul.

## Appendicitis

Dr. A. C. Baker - - - - - Fergus Falls  
Discussion to be opened by Dr. J. E. Moore, Minneapolis.

## Medicine and the State

Dr. Cornelius Williams - - - - - St. Paul

*Abst.*—Duty of the State to defend and care for its citizens in all and every way: To establish and maintain preparatory and finishing schools for the teaching of medicine and surgery; to establish hospitals and create a system of State aid for the sick in hospitals and at home. Eventually only State physicians to practice. Staff paid and pensioned by the State.

Discussion to be opened by Dr. Thomas McDavitt, St. Paul.

## Compensatory or Ectopic Menstruation

Dr. W. H. Condit - - - - - Minneapolis

*Abst.*—Early history of ectopic menstruation. Some theories of the physiology of normal and ectopic menstruation. Report of case under observation for nine years. Synopsis of the embryology of normal and abnormal menstruation.

Discussion to be opened by Dr. J. L. Rothrock, St. Paul.

OCTOBER 1, 2 P. M.

## ADDRESS

Dr. W. L. Rodman - - - - - Philadelphia, Pa.  
President, American Medical Association

The Preventable Field: Relation of the Practicing Physician, the Local and State Health Officer

Dr. I. J. Murphy - - - - - St. Paul

*Abst.*—Survey of the preventable diseases which are most prevalent in Minnesota: tuberculosis, pneumonia, accidents, cancer, child diarrhea, etc. The opportunity for propaganda by the practicing physician, especially in the field of cancer and child diarrhea. Propaganda in the distinctly communicable field should be carried on more extensively by both local and State officials.

Discussion to be opened by Drs. A. J. Chesley, Minneapolis, and H. M. Bracken, St. Paul.

## Perforating Ulcer Following Gastro-enterostomy

Dr. Arthur Collins - - - - - Duluth

*Abst.*—Inefficiency of gastro-enterostomy to cure in certain cases; report of case; rarity of this specific type; its kinship to other peptic ulcers; discussion of literature.

Discussion to be opened by Dr. W. J. Mayo, Rochester.

Varicose Veins and Ulcers: Surgical Treatment and Results

Dr. D. C. Balfour - - - - - Rochester

*Abst.*—Various types of operation. Description of the routine operation used at the Mayo Clinic with a tabulation of end-results. Comments on Statistics.

Discussion to be opened by Dr. Earle Hare, Minneapolis.



Internal Secretions in Relation to Neurology and  
Psychiatry

Dr. E. M. Hammes - - - - St. Paul

*Abst.*—Psychosis due to functional insufficiency and hyper- or dys-function of the thyroid gland. Case-history. Mental and nervous symptoms which occur, due to perverted secretions of the pituitary gland, the suprarenal capsules, and other internal secretory organs.

Discussion to be opened by Dr. J. F. Corbett, Minneapolis.

Colored Drawings Illustrating Diseases of the Pharynx  
Dr. J. D. Lewis - - - - MinneapolisSemeiotic Significance of Pathological Findings of Adult  
Feces

Dr. C. P. Robbins - - - - Winona

*Abst.*—Suggestions regarding diseases and disorders of the intestine and adnexia, based upon the examination of the feces, and corroborating the subjective and objective findings.

Discussion to be opened by Dr. A. H. Sanford, Rochester.

## NEWS ITEMS

Dr. A. B. Williams, of Wilmont, has sold his practice to Dr. J. D. Waller, of Minneapolis.

Dr. E. A. D. Jones, of Sioux Falls, S. D., has sold his practice and moved to New Orleans.

Dr. Otto Hanson, a former interne at the St. Paul City and County Hospital, has located at Kensington.

Three thousand dollars have been subscribed toward the ten thousand dollar hospital proposed for Carrington, N. D.

The first regular meeting of the Hennepin County Medical Society after the summer vacation will be held Monday, Sept. 6.

The constitutionality of the Harrison narcotic law has been upheld in the U. S. District Court at St. Paul by Judge Page Morris.

Dr. F. E. Weed has moved from Lankin, N. D., to Park River, Minn. He takes over the practice of the late Dr. R. J. Church.

Dr. O. N. Meland, of Dawson, has returned to practice after spending some time in study at Dr. R. C. Cabot's Clinic in Boston.

A report has been received that Dr. H. W. Coulter, formerly of Mountain Lake, has been wounded on the battlefield in Europe.

Dr. J. M. Hall, of Minneapolis, was married the first of last month to Miss Alberta May

Morgan, of Sunbury, Pa.,\* former head nurse at the Minneapolis City Hospital.

Dr. William Scanlon, of Fargo, N. D., died on Aug. 23 at the age of 47. Dr. Scanlon was a graduate of Hamline, class of '97, and was city health officer of Fargo at the time of his death.

The Minnesota Public Health Association puts the number of preventable deaths in Minnesota last year at 11,000, with many thousands made cripples or invalids by preventable diseases and accidents.

Governor Hanna, of North Dakota, has appointed the following physicians members of the N. D. Board of Medical Examiners: Dr. H. O. Altnow, Mandan; Dr. B. L. Meigs, Edgerley; and Dr. J. N. Ewbank, Rhame.

The plan to limit the size of the freshman or entering class of the Medical School of the University of Minnesota has been put before the Board of Regents, and will, no doubt, be adopted. It means quality, instead of quantity, in future classes.

Dr. Leon J. Coria, a graduate of the University of Minnesota Medical School in 1904, and a resident of Minneapolis for the past six months, died at his home August 22 from infection incurred in connection with his work at the University Free Dispensary.

The Red River Valley Society held a quarterly meeting at Warren last week. Drs. E. R. Colvin, of St. Paul, and Theo. Bratrud, of Warren, read papers, and the same were fully discussed. The meeting was an excellent one; and the elaborate banquet was greatly enjoyed.

Governor Hammond of Minnesota has appointed the following delegates to the Mississippi Conference on Tuberculosis to be held at Indianapolis Sept. 29-Oct. 1. Dr. A. T. Laird, Duluth; Dr. G. W. Beach, Walker; Dr. Robinson Bosworth and Dr. J. J. Murphy, St. Paul; and Dr. A. J. Chesley, Minneapolis.

The Watertown District Medical Society had a delightful meeting and outing last month. About eighty members and guests visited Lake Kampeska, where dinner was served. Papers were read at the meeting by Dr. F. M. Crain, Redfield; Dr. A. E. Johnson, Watertown; Dr. H. W. Sherwood, Doland; and Dr. George Edward Bruce.

The Medical School of the University of Minnesota has named the following heads of its staff in the St. Paul City and County Hospital: Dr. John Rogers, chief of the service in surgery;

Dr. W. R. Ramsey, chief in pediatrics and contagious diseases; Dr. Ernest Hammes, chief in mental and nervous diseases; and Dr. J. L. Rothrock, chief in obstetrics and gynecology.

The Minnesota Public Health Association has elected as its president Dr. H. W. Cook, medical director of the Northwestern National Life Insurance Company. This is an admirable selection. Dr. Cook's life-work is along the same lines as the work of the Association; and his connection with a large life insurance company will largely increase his efficiency in his public work.

The Institute of Public Health at London, Ontario, which is a school for public-health instruction, has had its teaching facilities greatly increased by the appointment of the members of its staff as officials of the London City Health Department. Dr. Hill is the City Medical Officer of Health, and the entire instructional staff holds offices, thus bringing the students of the Institute into touch with the actual problems they are studying in the school-room. We believe there is no official connection between a teaching public-health school and a city public-health department elsewhere in Canada or America.

#### FOR SALE

A Wagner mica plate static machine with accessories, for sale. Price very reasonable. Write Dr. Russell, Stewartville, Minn.

#### STATIC MACHINE FOR SALE

A 16-plate static machine doing first-class work is offered for sale right now. Price, low. Address inquiries to Lock Drawer 188, Stewartville, Minn.

#### LOCATION WANTED

Twenty-five dollars will be given for information leading to a satisfactory location in Minnesota, or a state reciprocating with Minnesota, by a physician of eight years' experience in general practice. Address 251, care of this office.

#### PRACTICE FOR SALE

Good location in most central part of North Dakota; collections over 98 per cent. \$500 to \$800 will handle the deal. A good opportunity for a good man. Address 250, care of this office.

#### OFFICE ASSOCIATE WANTED

Eye, ear, nose, and throat man wanted to office with general practitioner on Lake Street, Minneapolis. American preferred. Fine opportunity; good field. Address 248, care of this office.

#### PARTNER WANTED

Wanted a man with surgical ability to form partnership in a general and hospital practice, in a good county-seat town in Minnesota. Scandinavian preferred. Little money required. Full control of hospital. Address 243, care of this office.

#### APPARATUS FOR SALE CHEAP

Betz Galvanic and Faradic Wall Cabinet, oak finish and bevel-plate glass; also 50 wet cells; 1 Betz Giant Cautey; 1 small hand Vibrator; a variety of surgical instruments. Owner recently deceased. Address 252, care of this office.

#### PRACTICE FOR SALE

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### DR. WALD AND THE HOPE SANITARIUM

We are advised by the management of the Hope Sanitarium, of Hastings, Minn., that the statement in our issue of August 1 concerning Dr. Rudolph H. Wald's connection with that institution, was an error, and not authorized by Dr. Wald, who is not connected in any way with the management and conduct of the institution.

Dr. Phil J. Brady, who is a member of the Ramsey County Medical Society, the health officer of Hastings, and has been practicing there for the past three years, has secured an interest in the Sanitarium, and, together with Mr. E. O. Fuller, will conduct the institution in the future. Dr. Brady will devote his entire time to looking after the medical welfare of the patients of the institution, and he extends a hearty welcome to fellow physicians to call and inspect the place.

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## THE FUTURE OF THE MINNESOTA STATE BOARD OF HEALTH

BY H. M. BRACKEN, M. D.

Secretary and Executive Officer of the Minnesota State Board of Health  
ST. PAUL

For years Minnesota has been in the front rank in public-health work. Its Board of Health was the third one created in this country (1872), Massachusetts and California having preceded Minnesota in the organization of such boards in the years 1869 and 1871, respectively.

During the forty-three years of the existence of the present Board of Health, it has had but five presidents and two secretaries. The first president, Dr. A. B. Stuart, served but one year, resigning from the Board at the end of that time. The second president, Dr. D. W. Hand, served as president from 1873 to 1889, sixteen years, his service being terminated by his death. The third president, Dr. Franklin Staples, served from 1889 to 1904, fifteen years, his service being terminated by his death. The fourth president, Dr. Henry Hutchinson, served as president from 1904 to 1910, six years, when his service was terminated by his death. The fifth and present president, Dr. W. A. Jones, has been in service since 1910.

Dr. Charles N. Hewitt, the first secretary of the Board, served twenty-five years. The present secretary has been in service over eighteen years.

The methods of state health regulation may be grouped under three heads:

1. A board or department which has to do purely with public-health matters.
2. A state health commissioner acting alone or with a board.
3. A board which has charge, not only of public-health matters, but also the licensing of physicians, etc.

The United States has an efficient Public Health Service operating as a bureau in the Treasury Department, but this is not considered satisfactory from a national point of view, and much agitation has been carried on during the past years to secure the creation of a national department of health.

In Minnesota the present organization as a board of health could easily be changed to that of a department; for it is in fact a department now, the work not being carried on from a single head, but through divisions. The Efficiency and Economy Commission appointed by Governor Eberhart recommended to the last Legislature that the Minnesota State Board of Health be changed to a bureau in the Department of Public Welfare. Dr. Carroll Fox, surgeon of the United States Public Health Service, after making a careful survey in 1914 of public-health administration in Minnesota, recommended, among other things in connection with his final report:

"That the designation of the State Board of Health and its status in the state government be changed to that of a State Department of Health."

The legislature of 1915 authorized the appointment of another Efficiency and Economy Commission. This commission has been appointed and will take up its work in the near future. The question is, what is to be the attitude of Minnesota in relation to the recommendations made by Dr. Carroll Fox and by the last Efficiency and

Economy Commission. Is Minnesota going to take a step backward by allowing its health work to be organized as a bureau, or is it to keep in the front rank by changing its present organization of a board to that of a department?

Within the past few years Minnesota has been passed in the matter of state health organization by two other states, namely, Pennsylvania and New York.

New York now stands at the head of the state health organization as relates to efficiency. Under the reorganization which was brought about in 1913, there is a council consisting of seven members, one *ex officio*, the Commissioner of Health, and six appointed by the Governor. Of these appointive members, three must be physicians trained in sanitary science and one a sanitary engineer. The term of office for these members is six years, the term of one member expiring each year. The Commissioner of Health must be a physician of "at least ten years' experience in the actual practice of his profession, and of skill and experience in his duties in sanitary science." The New York Council of Health, among its many other duties, has authority to enact a sanitary code "for the security of life or health or the preservation and improvement of public health."

In the creation of this department, provision was made for divisions to carry on special work, and there are now organized nine divisions, as follows:

- Division of Administration.
- Division of Sanitary Engineering.
- Division of Laboratory and Research.
- Division of Communicable Diseases.
- Division of Vital Statistics.
- Division of Publicity and Education.
- Division of Child Hygiene.
- Division of Public Health Nursing.
- Division of Tuberculosis.

Massachusetts, the first state to create a Board of Health, reorganized its public-health work in 1914, creating a State Department of Health. The lines of organization follow somewhat closely those of New York.

The Commissioner of Health in all of the states named above, namely, New York, Massachusetts, and Pennsylvania, is appointed by the Governor. This seems to be the weak point in this reorganization.

In New Jersey the law relating to a Board of Health was amended by abolishing the present board and creating a Department of Health in

its place. This department is controlled by eight persons appointed by the Governor. The director of health is to be chosen by the Board.

The first thing to consider in connection with public-health work is efficiency. This can be secured only by insuring permanency in position for those engaged in the various lines of public-health work. Permanency in position can be secured only by the removal of public health activities from political control. This can best be secured by giving to the Council of Health, appointed by the Governor, authority to name the Commissioner of Health.

The Efficiency and Economy Commission, in its recommendations for a department of education, practically outlined such a procedure, providing for a board and giving it authority to appoint the superintendent of education. It is difficult to understand why this commission was willing to make such provision for education and relegate health to a bureau in a Department of Public Welfare. I presume it did not consider health as important as education; yet it was only a few years ago that a leading educator in this State gave health first place and education second place in matters relating to mankind.

The danger of leaving the appointment of the Commissioner of Health in the hands of the Governor rather than in the hands of experts on public health has already been shown in New York State, where a vigorous attempt was made last winter to have the present Governor remove the present Commissioner of Health of that State, one of the leading sanitarians, not only of this country, but of the world.

Medicine has become too large a subject to be covered by any one man. The result is that we have the many specialties in medicine, and physicians choose their life-work in one or another of these specialties. Physicians who choose to make public health a life-work should be in the position of specialists, yet they differ from other specialists in medicine in that the positions which they hold are governmental appointments. The permanency and success of a physician in a specialty in medicine depend upon his ability. The permanency of the physician who chooses public health as a life-work depends, to some extent at least, upon political pressure; for in the carrying out of his duties he will undoubtedly make some enemies, and enemies will always be active in their attempts to have him displaced by one means or another at every opportunity presenting. It must be apparent, therefore, that public



health as a specialty will never be attractive until it is put on such a basis as to remove it as far as possible from politics.

In the report of the last Efficiency and Economy Commission provision was made for the appointment of the head of each department by the Governor, the term of office being for two years only. If this report had gone through, the Commissioner of Health would have been at the head of a bureau only, under the head of a political appointee holding office for but two years.

Public health is now recognized as a problem for the people—not purely a medical problem. Nevertheless, physicians have a better knowledge of public health methods than have any other group of individuals. It is but fitting, therefore, that the medical profession should be well represented in a Department of Health. In New York State, four out of the seven members of the council are physicians, one is a sanitary engineer, and the other two are lay members, all are thoroughly interested in social problems bearing upon health.

In Minnesota to date public-health work has been kept well out of politics. Many of the members of the Board have been reappointed time and time again so long as they were willing to serve, and this without any reference to their political

standing. There was a time when the question was raised: "What are the politics of the members of the Board of Health?" The executive officer of the Board was not able to answer this question at once, for he had never interested himself in the question as to the politics of any member of the Board.

The American Medical Association, through its Council on Health and Public Instruction, has recently had a survey made of the various state health activities. The report on this survey will be published in the near future. In it none of the states approached the ideal, but Minnesota was well in the front rank.

As the medical profession in Minnesota has taken the leading place in public-health work in this State during the entire existence of its Board, it is but fitting that the State Medical Association should give some consideration to this question at the present time. Does this Association wish public-health work to continue free from politics in Minnesota? Does this Association wish this work to be carried on as a distinct department or as a bureau in some other department? It seems to me this Association should put itself on record on these matters.

## SOME IMPRESSIONS ON THE GOITER QUESTION\*

By R. H. RAY, M. D.

GARRISON, NORTH DAKOTA

The goiter problem is one which the increasing number of articles referring to this subject in medical magazines would indicate to be acquiring more importance and interest. I am beginning to realize its seriousness locally by the apparently larger number I am meeting in practice. The death-rate has been about as great from this as any other individual cause. A great many atypical cases are constantly to be found in this community. The number of simple goiters is very large in proportion to population. Dr. McKee, the Indian Agency physician, informs me she believes that fifty per cent of the Indian women are subject to this trouble.

The thyroid in fetal development descends from its first embryonic origin at the base of the tongue to its usual anatomical site. It is connected during the transit to the base of tongue by the thyroglossal duct, later obliterated. The only

reason for mentioning this fact is that it is possible it explains why aberrant forms are found that extend even substernally.

The physiological importance of the gland must be considerable when an organ weighing approximately twenty-five grams has the blood-circulation pass through it in the space of one hour. Its place in the internal economy is, first, that of a control or stimulant to nutrition,—a stimulant because of the fact that with lessened secretion the picture of myxedema presents itself, a possible aid in keeping other glands in a state of equilibrium; in intimate relation with female generative organs; a stimulant to vasomotor nerves, and very likely with the same effect on vagus nerves.

The thyroid secretion itself is a thin, watery one. It has the power of storing up as secretion a substance called colloid, yellow, viscid, with some body. The secretion has as its principal ingredient iodine, and is termed iodothylin. This

\*Read at the 34th annual meeting of the North Dakota State Medical Association at Bismarek, N. D., May 12 and 13, 1915.

biochemical, from our present knowledge, plays the principal rôle in the function of this gland. The secretory activity is brought about through its nerve supply.

Pathologically, the simple goiters are the predominant ones with the only change, a hypertrophy of the gland. The very large goiters are mostly of the colloid type, cystic and adenomatous forming the balance of the large group. The excessive storage of colloid would appear to lead to degenerative changes due to pressure.

In the exophthalmic cases, as stated by Dr. Wilson of the Mayo clinic, a very constant pathological condition is found. This consists of a hyperplasia of the parenchyma without any other changes associated. In the atypical cases or toxic non-exophthalmic goiter these were found to be usually of longer standing. The pathological change was quite constantly a degenerative one associated with hyperplasia, or a re-generative and degenerative change associated.

Temporary enlargement is found in such conditions as menstruation, pregnancy, or at the age of puberty.

Thyroiditis is found at times. I have had two cases of the purulent form and one of the simple, where the enlargement was very marked over a period of about four weeks, gradually going to normal. The latter patient came to me over four years ago; and I recently took occasion to count the young man's pulse and found it over ninety, indicating some toxic goiter. There was a slight increase in the size of the gland.

I recently saw a woman about sixty who had never consulted a physician. She had a marked Stellwag's sign: the palpebral slits were decidedly widened; and the pulse was about eighty-five. She did not realize that anything was wrong. This condition must have been present some time. Practically, the only symptom present was the exophthalmos. This case would very likely, from Dr. Wilson's findings, be pathologically an adenomatous change with some hyperplasia associated.

Her son, aged thirty-two, consulted me in April, 1914. He had a typical exophthalmic goiter. He had had a sore throat and a grip attack shortly prior to this time. He was operated on in May. A ligation was done; and in June the thyroid was removed. Following the operation, his pulse remained at about 120, until February, 1915, when it went down to 100. It is now about 80. He is working every day and feels fine. During the last two or three months I gave him quinine-

hydrobromide. Possibly in this case surgeons did not remove enough of the gland.

On March 10, 1915, I delivered a woman of about thirty-three. Labor was a little tedious and difficult. Following confinement, the pulse went up to 130, with no rise in temperature, and it remained about that high for two or three weeks, gradually going down to normal (70). There was usually some nervousness present. There was no other trouble, except a badly lacerated cervix. The goiter was small.

Five or six years ago I delivered another woman, aged thirty, who, I learned afterwards, had had what would be considered attacks or exacerbations of toxic non-exophthalmic goiter, since she was eighteen. Her pulse, after a difficult labor, went up to 150 or so. She thought that she was going to die. There was no particular reason for her condition. After two or three weeks' time, her pulse gradually went down to normal (80). She has tachycardia now following a fright or angry spell. The goiter was rather small.

A man, approximately thirty, consulted me about five or six years ago for a typical toxic exophthalmic case. Had never consulted any physician before. From gossip I understand he had been having trouble for about a year. Shortly after seeing him, he was operated on, and died within twenty-four hours of the operation, overwhelmed by toxemia.

A woman, about twenty-eight, with slight goiter, became pregnant. As this advanced into the third month or so, symptoms of dyspnea and tachycardia gradually increased. Her physician becoming alarmed after consultation induced a miscarriage, and her symptoms immediately disappeared. In eight months or so she again became pregnant. This time I was her attending physician. When hardly in the second month, symptoms the same as stated became so severe I decided to induce a miscarriage. Immediately she was better.

I do not remember finding anything at fault with the urine or anything similar about a toxemia of pregnancy in any text-book. I advised an operation for goiter. This was in 1908. She was finally operated on, and returned thinking that she was all right. Shortly afterward she again became pregnant. I do not know any details of the case other than symptoms similar to those in her previous sickness. I was not in attendance. Before they realized how serious the condition was, she very suddenly died. Would it

not be possible she had a substernal goiter affected particularly by pregnancy?

I have seen a few cases from time to time of tonsillitis or bronchitis associated with exacerbations of hyperthyroidism.

I had another experience with toxic goiter following confinement at the twelfth day,—an attack resembling phlegmasia alba dolens. The pulse was high, and the temperature went up to 105°. After three or four days the symptoms were almost normal. This woman had had exacerbations of hyperthyroidism, with other complications before and after this time. Her pulse at the present time is about 76.

There is another probable phase of the disease. A woman, now 52, had a small goiter start when she was eighteen. When she was twenty-five she had a slight tubercular lung trouble, from which she entirely recovered. At forty-five she had a uterine growth that gave rise to excessive hemorrhages, which, under treatment, gradually ceased. About three years ago she developed a bronchial asthma, more or less continuous ever since. Her condition at times shows some bronchorrhea associated. She spent last winter in Florida, with no relief. On her return her pulse was 100. The goiter is not very large but firm, and she is losing in weight. About 1909 she took on fat in a short time; had some pallor of the skin, a sub-normal temperature, and was never active physically. It is probable at that time there was some inactivity of the thyroid gland. Personally, I believe that the bronchial condition at this time is due to toxic goiter, manifesting itself in an unusual manner.

Another woman, about thirty, had a small goiter when 18. She has never had toxic symptoms, and there is no evident enlargement of the gland at this time. Three or four months ago she had spells of vomiting daily, and they continue up to the present time. A stomach analysis in a hospital revealed a hydrochloric acid deficiency, with no other definite reason to account for her condition. It is possible this could be another phase of toxicity.

In a German clinic a routine examination of the stomach contents in toxic goiter revealed almost invariably a condition of achylia gastrica or deficiency of HCl.

Dr. Elsner, of Philadelphia, calls attention to the surprising number of uterine growths associated with toxic goiters.

In talking with a local veterinarian he informs me that horses sometimes have an enlargement in the neck corresponding to the thyroid gland,

and that sometimes he sees a horse that becomes thin and long-haired, and sweats easily and is unable to make any sustained effort at work. It is possible that these cases if followed up might demonstrate goiter.

The goiter symptoms could be well represented by two lines crossing each other at an acute angle. The widest interval between the lines at one side would represent myxedema; as they near each other, hypothyroidism, then a state of inactivity of the glands. The symptoms in the two latter conditions are as follows: thyroid, any size; skin, pale and dry; loss and dryness of hair; fingernails, brittle; subcutaneous fat, abundant; mouth, dry; pale tongue; anorexia; fermentation; constipation; normal pulse; blood-pressure, 110; sub-normal temperature; slight anemia; mental apathy; and asthenia. This condition is most likely to be seen at puberty or change of life, the transitional periods. The crossing of lines indicates the normal state. After crossing over there is activity of glands, or hyperthyroidism. This is likely most evident also at the transitional periods, especially the earlier. Then would come the toxic non-exophthalmic forms, and, last of all, the toxic exophthalmic cases.

This paper would hardly be complete without making mention of a new field of medicine in which considerable work is being done at this time. Dr. Eppinger, of Vienna, working along the line of stimulation of the sympathetic nervous system and the vagus, has produced a symptom complex with many symptoms similar to those found in toxic goiters. Dr. Wolfsohn also has an article in the *Journal of the A. M. A.*, May 16, 1914, along similar lines. The tables given and the subject matter indicate that the two groups are found in toxic goiter. The former states that individuals fall into three groups,—the normal type, the vagotonic type, and the sympathicotonic type. A given stimulation or inhibition affects individuals differently. The sympathicotonic symptoms and signs are as follows: dryness of eyeballs, skin, and mouth; infrequency of winking; low gastric acidity; increased gastric secretion; lessened intestinal tonus; constipation; faulty convergence of the eye-balls; wide eye-slits; exophthalmos; tachycardia; relaxation of the bladder; and incontinence.

The vagotonic symptoms and signs are hyperacidity of the stomach contents; arrest of secretion; achylia; hypermotility of the stomach and intestines; vomiting; diarrhea; brachycardia; low blood-pressure; asthmatic attacks or bron-



chial asthma; mucous colitis; gastrospasm and pylorospasm; and clammy hands and feet.

Some of the general symptoms in toxic-goiter cases are the increased temperature found in other complications; the increased high pulse-rate; the longer time the patient requires to overcome infections; the fact that toxicity has no relation to the apparent size of the goiter; that symptoms may intervene years after an increase in the size over normal, and that symptoms have no definite order of appearance, and may vary as to the kinds present.

#### DISCUSSION

DR. F. R. SMYTH (Bismarck): I requested that the discussion of this paper be put off until this afternoon, because I think it is a matter that concerns all of us, and especially those of us who practice on the Slope. It is not only my own, but it is the experience of most physicians, that goiter is increasing at a very rapid rate in this locality, and I think in that part of the district where Dr. Ray comes from, farther north from here. It is important that there should be a full discussion of this, because it is not a matter so much of the treatment as of the prevention of goiter, discovering the etiology, and, if possible, preventing it. It appears to attack, at least in this locality, young women more than any other class, and I have been struck with the amount of goiter, it may have been accidental, from Turtle Lake, near where Dr. Ray comes from.

Now, as I say, I have studied that matter more from the point of etiology than from the point of treatment. It does not appear to be difficult to make a diagnosis, but the cause of goiter appears to me to be a matter of doubt, and if we could solve the cause, we would be in a better position to prevent it.

A major in the British army has made a very exhaustive report of cases of goiter in India, and there is this peculiarity there, that one village, or one or two villages quite close together, which get their water from a certain source, had a large number of cases of goiter, and in other villages in close contact getting their water from a different source there was no goiter. Still more remarkable is the fact that in European countries where there is conscription, young men, eligible to go into the army, who want to avoid military service, when likely to be called into service, drink goitrous waters, and in a week will contract an enlargement of the gland, and be rejected by the examining officers, and, as soon as they are exempt from military service, will begin drinking distilled water or boiled water, and the enlargement will disappear. Major McGarrison, M. C., made some experiments in India on thirty-six young men volunteers coming from non-goitrous districts, and put them under the most favorable conditions, allowing them to drink only water from non-goitrous sources. Their food was carefully supervised, and then he took water from well-known goitrous sources, and that was filtered, and the sediment taken and each individual who was experimented on was given a stated amount of this sediment every day with his food. Out of the thirty-six who were experimented with, ten contracted goiter, five or six had enlarged glands, and the others made no changes. Then he took

a large number of individuals, and he boiled this sediment with water and gave them that, and it had no effect upon them at all. The conclusions arrived at from these experiments was that goiter is due to micro-organisms in the water, and is not due to chemical compounds. Other experimenters come to the same conclusion, though some differ from that.

I think it important that this matter should be thoroughly investigated before coming to any conclusion, and I believe all of us get enough goiter patients so that we could investigate to a great extent at home.

I shall not enter into the treatment.

I think my treatment has been like that of others, not very satisfactory as a rule; but, if we can prevent the disease, we shall be doing a great deal, and if it is increasing at the rate our experience in this part of the country indicates, we ought to do something. The most interesting thing to me in Dr. Ray's paper is that a veterinary said it prevailed among horses. Now, if the disease exists among horses, we can get some legislation that will help us. Goiter among men, women, and children will not influence our legislators; but if among animals we can get an appropriation that will allow investigation.

DR. RAY (Essayist): The only thing I can say in conclusion, is that I think I could very likely produce twenty-five cases of toxic and exophthalmic goiter in my community without much question. Of course, Garrison is located on the western slope of Dakota range of hills, and that watershed goes toward the Missouri River. I have always imagined that the closer people live to the river the more likelihood of their having goiters. Of course that is only a surmise. I have no way of proving that. The Indian Reservation is not just exactly in that watershed, but approximately so.

One thing I think is very unfortunate, and that is, that our friends, the surgeons, seem to have the whole field to themselves, at least they claim the whole field from all that I have seen pertaining to the subject. I remember one surgeon stated that every innocent goiter was a surgical condition, and the only remedy to apply is a surgical one. It looks unfortunate that the medicine man is not able to do more than he has up to the present time for this condition.

I am not so sure about the horse proposition. I just mentioned that. It is simply a surmise that horses are liable to have toxic goiter. The field of veterinary medicine is not extensive enough to cover that, and they have nothing in the veterinary literature that covers that field at all, but I had thought possibly from his description of it that it might be possible, and it would be a subject that so far as they are concerned might be worth looking up.

One point I brought out in the paper, which is not covered particularly by many articles, is the wide variation of symptoms that are associated with toxic goiter; and that is the particular reason I mentioned that case of vomiting. I may be incorrect, so far as that case is concerned, and then that case of bronchial asthma covering a period of two or three years, and then the particular case of the woman who died of dyspnea and a high-pulse rate. Some doctor told me he thought I was wrong, and that it was a toxemia of pregnancy. I have not been able to find anything in Williams' work on obstetrics on toxemia of pregnancy that covers the case at all, and I don't know how to account for that

death in any other way than that it might be possible that the woman had a subexternal goiter that was overlooked, for those cases were not very well taken care of seven or eight years ago. A good many surgeons did not know at that time what they do now on this subject.

Just another thing. I have often wondered if the man in general practice who sees a young woman of sixteen or seventeen, who looks a little neurasthenic and possibly has a small goiter, will call that a condition of anemia or something of that kind, and if, in many instances, he is not overlooking an inactive thyroid gland.

DR. J. E. MOORE (Minneapolis): I had not the pleasure of hearing the paper, but I would like to make some remarks with reference to the attitude towards goiter by the surgeons. The party whom he quoted is one of those pseudo-surgeons. It reminds me of a reply I made to a man in St. Paul who said every once in a while he had a patient with a number of abdominal scars that the surgeons had made, and when he was through I replied that surgeons did not do that, it was

medical men who were trying to do surgery, and did not know how.

Having charge of the surgical patients, I have given out a standing rule that all patients suffering from disturbed respiration shall be admitted as medical cases. I have also another hard and fixed rule, namely, that these sixteen-year-old girls shall not be operated on. They are also medical cases. A large percentage of them will get well under proper medical treatment. A change of water, oversight of the food, proper hygienic measures, etc., will relieve a lot of them, particularly those girls that get the goiter just about the time they are beginning to menstruate.

I can remember that when I was a general practitioner and a patient of that kind came to me, I painted the goiter with iodine, and after a time the goiter disappeared, and I flattered myself I brought about a cure that way. Later, much to my chagrin, many of those which were not painted disappeared just the same, so that now in our hospital we consider those cases medical cases; and I am glad the gentleman brought that point out.

## URINARY SYMPTOMS IN APPENDICITIS\*

BY PERCY D. PEABODY, M. D.

WEBSTER, SOUTH DAKOTA

At first thought I was rather reluctant to present a paper on so common a subject as appendicitis. But, while the symptoms of appendicitis in the majority of instances, especially in typical cases, are usually easy of recognition, and diagnosis offers little difficulty, yet there is no other disease in the domain of surgery which at times offers more surprises, and greater obstacles to a correct diagnosis. Not only is the diagnosis at times most difficult, but a true recognition of the gravity of the case is impossible, especially in some of its atypical forms.

It is owing to our failure oftentimes to diagnose these atypical cases early enough to give the patient the benefit of an early operation, that the death-rate still remains far above what it should be. Dr. Murphy, in his clinical talks on appendicitis, says: "When we come right down to a heart-to-heart talk about appendicitis, the grim fact that we must admit is, that we are still losing too many cases. We, the members of the profession, are responsible; and there is no use denying it."

It is because of the difficulties I have encountered in making a diagnosis of appendicitis in a number of patients with urinary manifestations as the leading symptom, that I have been led to present this paper.

In typical appendicitis cases, both acute and chronic, we frequently elicit symptoms referable to the genito-urinary tract, such as urinary retention, increased frequency of micturition, sense of pain, relief upon evacuation of the bladder, and pain radiating into testicle and along the urethra. But, in contradistinction to this class of cases, we have those in which the urinary symptoms completely mask the true condition; and it is these latter cases to which my paper refers.

I have roughly classified these cases with urinary symptoms into three groups:

1. Those in which the associated pathology found at operation reveals sufficient evidence to account for what subjective symptoms were previously present.

2. Those in which the pathological findings do not seem sufficient to account for the previous subjective symptoms, and one is forced to the conclusion that reflex action through the sympathetic plexus must account for the associated urinary symptoms.

3. Cases in which we get all the evidence of a severe acute nephritis which is apparently toxic.

Group No. 1 is illustrated by the following case:

Mrs. K., aged 35, mother of five children, came to me in September, 1913, with the following history: For the past four or five months she has had, at intervals of two or three weeks, periods of frequent

\*Read at the 34th annual meeting of the South Dakota State Medical Association at Sioux Falls, May 18-20, 1915.



urination, accompanied by pain and tenesmus. This was also associated with pain across the lower abdomen, and some gaseous distention of the bowels. Her bowels are always regular, she has good appetite, and eating at the time of these spells does not aggravate the symptoms. These periods would last for a few days and then completely subside. These spells have never necessitated her remaining in bed. Her spell at this time lasted four days. Temperature and pulse, normal; heart and lungs, negative; the abdomen is somewhat distended with gas, and slightly tender over the bladder region. The right kidney can be palpated, and is slightly tender. Pressure over the right lower abdomen causes a desire to urinate. Pelvic organs apparently normal.

Urinalysis shows specific gravity 1.022, acid, straw color, a faint trace of albumin with Heller's test, and no sugar.

Microscopic examination shows a few red blood corpuscles, and bladder epithelium, no casts.

X-ray examination does not show anything in the kidney or ureter; and cystoscopic examination of the bladder was negative.

I made several examinations of the urine during subsequent attacks and found red blood corpuscles, but during the intervals the urine was negative.

Patient's condition continued about the same until December 10, 1914, when symptoms came on more severe than before, and were accompanied by vomiting. The temperature was  $100.5^{\circ}$ ; the pulse, 88; and there was pain and tenderness, with muscular rigidity, over the right lower abdomen. The urine gave the same picture as during previous attacks. The leukocyte count at this time was 12,000. Symptoms subsided in thirty-six hours, except for the urinary irritation; and forty-eight hours later these symptoms had subsided, and the leukocyte count was normal. In the absence of anything definite to account for the urinary condition, and after observing the last attack, I made a diagnosis of appendicitis.

Operation on December 17 through the border of the right rectus muscle disclosed an appendix situated over the sacro-iliac synchondrosis, lying directly over the ureter and surrounded by adhesions. The appendix was freed and removed; and the abdomen closed.

Patient made an uneventful recovery, and left the hospital on the twelfth day. Urine was clear at that time, and there has been no return of urinary difficulties.

Dr. N. G. Seelig, of St. Louis, in the *Annals of Surgery* (1908), reported three cases of appendicitis with symptoms in the urinary tract. Among these was a case in which all the symptoms pointed to a ureteral stone, and an x-ray picture showed what was unmistakably a stone in the intrapelvic portion of the ureter, but at operation the ureter was clear; and that which in the x-ray picture was taken for a ureteral stone, proved to be a stony concretion in the appendix, which was adherent over the ureter.

Group 2, in which no pathological condition could be found to account for the symptoms, is illustrated by the case of a young man, aged 19, who presents the following history:

In March, 1914, early one morning he was taken with severe pain, general over the abdomen, which in a few hours settled down to the lower part of the abdomen, and, he states, was confined to a small area directly over the pubes. He vomited at first; bowels were constipated. When this pain settled down, he had frequent desire to urinate, going frequently and passing small amounts at a time. This attack lasted three days, and cleared up. In July he had a similar attack lasting two days.

October 10 he was taken again with same symptoms, only more severe; and he thinks he had some fever at that time. He noticed that his pain subsided for a short time after urinating. This attack lasted four days. He came to me on October 17, not having consulted a physician previously. Examination showed heart and lungs negative. The abdomen was not distended, but pressure over the right rectus low down elicited some resistance and tenderness. Temperature was normal; pulse, 80. Urinalysis was negative; leukocyte count, 8,000; the urinary irritation had subsided.

A diagnosis of appendicitis was made, and I operated on October 20 through an incision in the border of the right rectus. A rather long appendix situated very near the median line, was found curving down into the pelvis over the sacrum, and adherent. It was freed from attachments, and removed, and the abdomen closed. Recovery was uneventful and the patient left the hospital on the twelfth day. There has been no return of urinary symptoms.

I have attributed the urinary symptoms in the above case to reflex nerve conditions through the sympathetic plexus, as the appendix was at no point in contact with the bladder, as we find it in some cases presenting vesical symptoms, neither was it apparently near enough to the ureter to account for the irritation.

Demo, the French surgeon, relates the particulars of six cases in Italian literature, and two in his own experience, in which reflex nervous phenomena,—kidney colic, pain during micturition, bladder tenesmus, cystalgia, smarting in the urethra or priapism,—were the first signs of trouble which later proved to be appendicitis. The inflammation in the appendix evidently acted on the vesical, renal, hypogastric, or pubic plexus, inducing functional disturbance.

Group 3, or cases in which we get severe acute nephritis, which is apparently toxic, I believe is typified in the case of a little girl twelve years old that was brought to the hospital on October 19, 1914, with the following history:

No history of illness antedating the present attack, not even the ordinary diseases of childhood. On October 16, three days prior to her coming to the hospital she had severe pain in the epigastrium, coming on in the afternoon, accompanied with vomiting; the vomiting continued at intervals during that night and the following day.

A physician was called the second day, at which time the temperature was  $102.5^{\circ}$ ; the pulse, 100; the pain



was general over the abdomen; and there was a pain over the right kidney radiating down into the right groin. She also had frequent micturition. She vomited two or three times the third day, and was brought to the hospital that night.

On examination the temperature was  $102^{\circ}$ ; pulse, 110; and the pain had more or less subsided. On going over the abdomen it was found to be uniformly distended with quite a distinct mass in the lower right side. Examination of urine, which was rather dark in color, showed specific gravity 1.025, reaction acid, and no sugar. On microscopic examination there was a large number of hyaline, granular, and epithelial casts, red-blood corpuscles, and white-blood cells. The leukocyte count was 18,000.

Early the next morning the abdomen was opened, and a large abscess which was situated well over to the side, and quite well walled off, was drained. No attempt was made to remove the appendix. The patient was returned to bed and decinormal salt solution per rectum by drop-method was administered, and continued at intervals of forty-eight hours. The urine at that time showed considerable improvement, and on the fifth day was normal.

The patient left the hospital on the eighteenth day with a small sinus still draining a small amount. Six weeks later this sinus had not been closed, and she returned to the hospital, and I removed what was left of the appendix. The patient is well at the present time, and a specimen of urine recently examined was negative.

I have been unable to find in the literature anything relating to the question of how soon after the onset of initial symptoms, these nephritides develop. The cases I have had an opportunity to observe have all had abscesses at the time the first urinalysis was made.

I should be pleased to know if anyone present has had opportunity to observe the development of a nephritis during an attack of appendicitis.

One must bear in mind the possibility of appendicitis developing in an individual in whom a pathological condition of the genito-urinary tract previously existed. These cases might possibly be placed in a separate group; but I believe all the cases which I have been able to observe, as well as the cases found in the literature, would fall in one of these three groups classified above.

#### DISCUSSION

DR. H. W. SHERWOOD (Doland): This paper was extremely interesting to me because I left at 7 o'clock this morning a case of this type. I saw the patient at about 7 P. M., Sunday. He was taken with chills, vomiting, pains all over the abdomen, and frequent micturition. I found marked tenderness over the bladder, but no tenderness at McBurney's point. There was also tenderness by pressure upwards between the rectum and the scrotum. Monday the pain continued, also the fever, and tenderness. From the absence of any urinary

findings I made diagnosis of appendicitis more by exclusion than any other way.

We removed him to the hospital at Watertown Monday evening, and operated on him. The appendix was gangrenous and ruptured. It was adherent to the bladder. The upper half was normal.

DR. R. L. MURDY (Aberdeen): The paper just read by Dr. Peabody is of more importance, I am inclined to think, than the average practitioner attaches to it.

Urinary irritation, in connection with appendicitis, is a very frequent complication, and oftentimes the appendicitis is so obscured by the urinary symptoms that we are not able to make a diagnosis early enough to do the best for our patient. Dr. Peabody grouped these cases very nicely, much better in fact than I have ever seen them grouped before. He groups among others one class in which the appendix is attached or adherent to some part of the urinary apparatus, such as the ureter or bladder. Those cases, of course, give a good deal of irritation directly; but the class of cases which is very obscure and hard to understand is the class which gives rise to symptoms referable to the kidneys, with acute inflammation or some marked urinary condition, due to toxemia or to the toxin-absorption from a diseased appendix. There are quite a number of cases of this character, cases which are known to have Bright's disease or albuminuria, and are not known to have appendicitis unless they are closely observed. Sometime during the course of the case it develops acute appendicitis, and you are able to arrive at a correct diagnosis. If your patient is operated on you will be greatly surprised to find that the appendix has no direct attachment to the bladder or to the urinary apparatus; yet the patient is suffering from very marked renal irritation. I have had occasion to operate on several patients of this kind; and, in each instance, we have had marked improvement of the kidney condition.

DR. N. K. HOPKINS (Arlington): I had a case of appendicitis which came to me in the first place as cystitis, with a very marked amount of pus and urinary irritation, and frequent urination, with all the symptoms pointing to the bladder. It was treated as such, and apparently cleared up. She later had an acute attack of appendicitis,—there was no question in my mind in regard to that,—and at operation I removed an acutely inflamed appendix, which was lying down on the ureter, but not adherent to it. She was apparently a well woman for a short time after that; but the bladder symptoms returned, and then kidney symptoms developed on the right side. There had been nothing before referable to the kidney. Cystoscopic examination showed inflamed right and left ureters, and colon bacilli were found in the urine. If I had not found an appendix that was acutely inflamed I should have thought I had made a mistake in the diagnosis of appendicitis, thinking it might have been kidney trouble, but, having found an acutely inflamed appendix, I am sure of my diagnosis of appendicitis and also of the diagnosis of kidney trouble connected with it.

At the present time the patient is passing urine that is at times very heavily laden with pus, and colon bacilli are found in the urine. She has attacks now, or within the past month, of pain starting in the right kidney, and traveling down the ureters. X-ray examination showed no stone in the kidney or ureters, and at the operation for appendicitis I could find no stone in the

ureter. This would come under the head of a colon bacillus infection traveling through the appendix, and starting the original urinary trouble, but I made my diagnosis of kidney trouble before I did that of appendicitis.

DR. PEABODY (closing the discussion): The case that was referred to was a very interesting case, and while the diagnosis of appendical trouble cleared up very readily, if there had been urinary findings in that case which would have attracted his attention very much at first, it would have been one of those cases which

would have caused considerable confusion in making a final diagnosis.

In going over the literature on the subject of toxic nephritis I noticed there is a French author who classifies those things directly as appendiceal toxic nephritides. I believe, in the case which Dr. Hopkins referred to, as he suggested, the infection might have traveled from the appendix to the urinary apparatus, and I believe that an autogenous vaccine in that case might have been of material advantage in clearing up the case.

DR. HOPKINS: I am using that at the present time.

DR. PEABODY: I think that is a good idea.

## NEOSALVARSAN IN PERNICIOUS ANEMIA\*

BY M. C. PIPER, M. D.

SANBORN, MINNESOTA

Richard C. Cabot calls pernicious (cryptogenetic) anemia "a chronic and usually fatal disease of unknown origin, producing, especially in elderly men, paroxysms of intense anemia and usually degeneration of the spinal cord," "occurring six or seven times as frequently after thirty-five years of age and slightly predominating in the male." The morbid pathology shows (a) hemolysis of the blood, (b) systemic and patchy degeneration of the spinal cord, and (c) a fatty degeneration of the heart, liver and kidneys.

Presumably as the result of an unsuccessful attempt to compensate for the fearful destruction of the red-blood cells, there occurs a characteristic metamorphosis of the erythrogenetic tissue of the bone-marrow, whereby its fatty portions are largely supplanted by active blood-forming tissue closely resembling the fetal type. There is a striking accumulation of the iron-bearing pigment in the liver, the spleen, and the lymph-glands, with intense pallor of all the organs, bright-red color of the muscles, brilliant yellow of the fat, the frequent evidence of serous effusion, and the patchy hemorrhages of the serous surfaces.

Grossly, the blood shows a low (under 2,000,000) red-blood cell count with a relatively high color-index and a normal or subnormal leucocyte count. Stained specimens with the microscope show poikilocytosis, excess of over-sized and irregularly shaped red-blood cells, stippling, and enucleated red-blood cells or megaloblasts.

In the normal male<sup>3</sup> the red-blood cells number 5,000,000 per cubic millimeter, the hemoglobin is 100 per cent, and the color-index, which

represents the percentage of the hemoglobin divided by the percentage of the red-blood, equals 1. In pernicious anemia there is an enormous diminution of the red-blood cells, so that the average well-marked case may show 1,000,000 red-blood cells, and the hemoglobin may equal 30 per cent, giving the color-index to equal 1.5. In some cases the color-index is 2 or more.

There is the striking difference between pernicious anemia and chlorosis that, in the latter, each red-blood cell contains on an average about .5 per cent of the normal amount of iron pigment, while in pernicious anemia one and one-half times the normal amount is usually found.

As to treatment of pernicious anemia, Dr. Byron Bramwell,<sup>3</sup> in an article in *The British Medical Journal*, says that in his forty years' experience arsenic has been the one drug upon which he has relied and that in the form of Fowler's solution or the injection of sodium cacodylate until the introduction of salvarsan in 1910. He thinks iron is contra-indicated in a true pernicious anemia because the red-blood cells are already overloaded with that substance, while in chlorosis the success of iron has proven the theory that the red-blood cells are deficient in iron pigment, as shown by their low color-index.

Dr. Bramwell gives a résumé of eleven cases treated by him with salvarsan. He says: "Two or three years ago salvarsan was introduced by Ehrlich for the treatment of syphilis; it contained arsenic and mercury. After seeing the remarkable effects of this remedy in some cases of primary and secondary syphilis, I thought possibly it might give as good or better results in pernicious anemia than the ordinary Fowler's solution by the mouth." He reviews the eleven

\*Read before the Brown-Redwood County Medical Society, January 6, 1915.

cases interestingly and convincingly, and he obtained, on the whole, "remarkably beneficial results." He employs the intra-muscular method of administering the salvarsan, for, in this disease, he thinks, one wants a remedy which will produce a sustained and continued effect. He says: "We do not know what the toxin is which appears to be the cause of pernicious anemia: whether a germ toxin or a chemical toxin. I employ 0.3-gm., or half the dose usually administered for syphilis. In some cases the salvarsan, when given intra-muscularly, produces a very considerable inflammation, pain, and swelling; but the neosalvarsan seems to be much more satisfactory in this respect; it does not produce such marked local results. In the cases in which I have used neosalvarsan I have found that there is little or no local pain or hardness, and little or no rise in temperature."

Dr. Thos. R. Boggs,<sup>1</sup> of Johns Hopkins, gives the following report:

"The scattered reports of the use of salvarsan in pernicious anemia which have appeared in the last three years are conflicting and unsatisfactory. In many instances the observation was confined to a single case, and the salvarsan was only an accessory to the other standard therapeutic methods. As there has been repeated warning expressed in the literature against the use of salvarsan in this disease, it seems worth while to give a brief review of our own experience and some of the literature.

"Bramwell's series of seven cases (reported up to this time) is an important contribution. With cure or favorable results in four cases, it is the most notable of arguments for the use of salvarsan.

"Leede's five cases with unfavorable results are not nearly so instructive, as four of the cases were moribund admittedly when the drug was tried. The other case did seem to be injured by the two injections.

"Friedlander's case, refractory to Fowler's solution, was rapidly restored after two doses of salvarsan followed by sodium cacodylate.

"Through the courtesy of Professors Barker and Thayer, the writer has looked over the records of seven cases of pernicious anemia treated in part with salvarsan at the Johns Hopkins Hospital. Of these, one received 0.3 gm., and died forty-eight hours later of a pre-existing myocardial degeneration, without any reaction or any material change in the blood-count. This patient was considered moribund on admission.

Another case died eighteen days after admission, receiving one dose of 0.2 gm. eleven days before death. There was no considerable reaction and no drop in the blood-count of more than 200,000 cells. The remaining five cases showed improvement with an initial drop in the blood-count never more than 200,000. As these cases also received sodium cacodylate or Fowler's solution, they are of value only as showing that the drug may be given to such patients without serious risk.

"In our own experiences at the Baltimore City Hospital we have had four cases, all of whom showed favorable reaction to salvarsan in the regeneration of the blood and relief of the symptoms. One was a most remarkable apparent cure of a patient in his fifth relapse, who was quite unresponsive to Fowler's solution, and showed only a very slight regeneration after a long period (four months) of sodium cacodylate injections. Under intravenous administration of salvarsan, in doses of 0.3 gms. every four weeks, he showed a steady rise in blood-count. The red cells in sixteen weeks rose from 500,000 to 5,000,000, and the hemoglobin from 23 per cent to 90 per cent, and the patient was well, except for the mild degenerative changes in the spinal cord. He worked in the hospital for six months, as elevator man, and then left for outside employment, and has been lost sight of. During treatment the patient contracted tertian malaria, and his blood-count fell, but rose after quinine and the next dose of salvarsan. This patient had no history of syphilis, and also had a negative Wassermann reaction in serum and spinal fluid before any salvarsan was given.

"Another pernicious anemia case in which the nervous symptoms preceded the change in the blood-picture by some months, was very responsive to salvarsan, his blood going from 1,000,000 to 3,400,000 red cells in twenty days after the first dose of 0.3 gm., intravenously, eventually reaching 4,800,000, with 80 per cent hemoglobin. This patient gives no history of syphilis, and the Wassermann reaction in serum and spinal fluid was quite negative.

"In this case the patient seemed unable to sustain the higher level of blood-formation, and relapsed rather quickly, only to rise to approximately normal count again after two more doses. The blood-picture, however, was never free from qualitative changes of pernicious anemia. After several rallies of this kind covering a twelve-month, in which the subjective state was little



altered, the patient died of an intercurrent bronchopneumonia. Autopsy showed typical changes of pernicious anemia with funicular degeneration of the cord.

"The two other cases, both negative for syphilis, received but one injection, and were greatly improved, with an average rise of 2,000,000 red cells when they left the hospital.

"In our own cases and those of the Johns Hopkins Hospital there was, as a rule, a rather sharp febrile reaction, lasting from six to twelve hours after each injection, a contrast to the very mild, or absent, reaction in syphilitics. All precautions were taken with regard to technic, Wasserrfelder, and size of dose.

"The results to date would certainly justify the further use of salvarsan in pernicious anemia with special attention paid to (a) the question of syphilis in the patient; (b) the influence of salvarsan given alone; (c) the effect on arsenic refractory cases; and (d) the permanency of results."

Alfred Friedlander, of Cincinnati, reports the following:

"Miss E. V.<sup>2</sup> (nurse) had been in California, where the diagnosis of pernicious anemia was made. October 10, 1911, the blood showed a typical picture of pernicious anemia, with great numbers of megaloblasts and all other concomitant features. The red cell count at this time showed 887,000. Physical examination was negative, except for slight cardiac dilatation. The patient had had large quantities of iron and arsenic before reaching the city. Oct. 10, 0.3 gm. of salvarsan in sesame oil was given in the gluteal region by Doctor Tauber. This was repeated Oct. 18. Hypodermic injections of cacodylate of iron, gr. 1, were then begun, and were administered on alternate days, twenty-seven doses being given. The patient's improvement was rapid, and she now presents no evidence of pernicious cachexia. The blood-picture is now merely that of a mild anemic. This report is too early to pronounce the patient entirely cured, but the changes after the administration of the salvarsan were certainly very striking."

Kall,<sup>4</sup> in the *Münchener medizinische Wochenschrift* of Berlin and reviewed in the *Jour. of the A. M. A.*, August 8, 1914, says that in the treatment of fifty-five cases of this kind with minute doses of salvarsan, never over 0.05 or 0.075 gm., he finds a simple and harmless method of giving arsenic. It is extremely effectual in increasing the weight, and improves the blood-picture and subjective symptoms in all forms of secondary anemia and mild tuberculosis. He gives from ten to fifteen injections, and repeats the course after an interval of a few weeks.

My own experience is limited to one case, but

the results were so striking that I thought it worth reporting.

A woman, aged 39, consulted me in January, 1912, because of an aching pain in the region of her heart, which seemed to pass through to her back, causing a lameness in the region of the middorsal vertebrae. Cold air irritated her breathing, and she became weak and easily tired. She experienced a sensation of continual heaviness in the pelvic organs, and a numbness of the skin sensations in the distal portion of the extremities.

Family history: father living and well at 72; mother, dead at child-birth; six brothers and sisters well; one sister died at age of 24 with some intestinal ulcer; four living children, and two miscarriages occurring before the third month.

Previous illnesses: Measles and mumps, lacerated perineum repaired previous to last child-birth.

Residence on farm in South Dakota, and worked hard until the last four years. Sleeps well, and appetite usually good, takes coffee three times daily, and uses no alcoholics or drugs.

Physical examination shows a woman of medium stature, olive complexioned, and rather flabby muscles; conjunctivæ and buccal membranes rather pale; pulse, 80 and full; temperature, 99.2; hemoglobin at this time about 70 per cent; upper teeth artificial and some pyorrhea below; chest, normal, except a dilatation of the cardiac area to one inch outside of the nipple line, a soft systolic murmur heard over the apex, but not transmitted; spleen, enlarged to below costal margin, and stomach tympany two inches below umbilicus; liver normal; urinalysis, negative; von Pirquet and sputum examinations, negative.

With general stimulation and out-of-door treatment the patient improved during that year, though the numbness in the legs and arms remained to some extent. One year later she had an attack of influenza following nervous excitement and hard work at a church bazaar, and from that time continued to lose in flesh and strength; the symptoms of the spinal-cord involvement, numbness in extremities, and heaviness became much more marked and distressing.

Last spring she consulted the Mayos, and was returned home with an iron and arsenic treatment, which she followed quite faithfully, but without any benefit. The interesting point in their report was the negative Wassermann reaction and findings of the general anemic condition. Hemoglobin at this time was 35 per cent.

Last July I referred her to Dr. H. L. Ulrich, of Minneapolis, who suggested the use of neosalvarsan, and referred me to the report of the Johns Hopkins Hospital, which I have just read.

At this time her blood-picture was 40 per cent hemoglobin, 1,360,000 red cells, and a color-index of 1.6, with the other general characteristics of pernicious anemia.

She came home very much discouraged, but was willing I should try the neosalvarsan.

On August 5, 1914, I gave her the neo-salvarsan No. 4, which contains the equivalent of 0.4 gm. of salvarsan. I gave it intravenously in a normal salt solution, and, owing to the serous edema of the tissue and small pressure of blood in the veins, I experienced some difficulty in introducing the needle. Then during the injection my needle either slipped out of the lumen of the vein or else penetrated through the other wall, for a swelling rapidly occurred locally at the place of injection with a small subsequent slough. She experienced very little discomfort, and in two days was considerably stronger and generally improved. She gained gradually, and on the 23d, seventeen days later, her hemoglobin was 50 per cent.

Another injection was given at this time, and I experienced very little difficulty in locating the vein; however, there was a more severe general reaction following this injection, some nausea, and a rise in temperature lasting about eighteen hours. Four days later a copper-colored urticarial-like eruption appeared all over the body with intense itching and some edema, which I attributed to a hypersensitiveness to arsenic or mercury. Though this itching and

edema lasted but a few days, the discolored spots still exist to some extent, but are gradually fading. About ten days after the last injection the hemoglobin had reached 65 per cent, and the patient was able to be up around her house. I was unable to secure more of the drug at this time because of the restriction on importation on account of the war, and so have not attempted to repeat the dose.

She has continued to gain in strength and general condition until now she does her housework, and comes to the office to receive injections of sodium cacodylate about once a week. Her hemoglobin is now 70 per cent, and has remained there up to now. She still complains of the numbness of her legs and arms, though it is, she thinks, gradually improving.

I consider this a striking result in a case showing negative Wassermann and tuberculin tests, and a typical picture of pernicious anemia, which to the ordinarily employed therapeutic measures had been entirely refractory.

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## TWILIGHT SLEEP\*

By C. J. LAVERY, M. D.

ABERDEEN, SOUTH DAKOTA

Painless child-birth, or the "Twilight Sleep," has received much attention recently for the obvious reason that there is a very urgent demand for a method that may, and does, rob parturition, or child-birth, of its awful and needless pain, and therefore of its terrors. Women are coming more and more to the belief that if the terrible labor of "confinement" can be avoided, and, at the same time, that they may enjoy the high privilege of motherhood, they are entitled to the great and priceless boon.

The lay magazines and newspapers and the medical journals have devoted much space to the subject, both editorially and in the publication of numerous articles by interested, though not always well informed, persons. Prospective mothers sit up and take notice, particularly those who have already gone through the valley of the shadow, and know from painful experience that the curse Mother Eve handed down to her daughter

was truly a reality. A hope that the good news was true took possession of them. This hope of the mothers of the future race will continue until fruition crowns their wishing and waiting.

It is opportune, indeed, that members of the American Medical Association give this method careful and intelligent consideration. The uses and abuses of the Twilight Sleep should be published to the world by those who know whereof they speak. In order that we may recognize what are its uses, and how it may be abused, it may be well to consider, first of all, what the Twilight Sleep is.

Those members of the medical profession who were in practice from ten to fifteen years ago, are, or should be, fully aware of the introduction of the method at that time, as the medical journals published many articles on the use of scopolamine as an aid in general anesthesia, and later advised physicians of its use in obstetrics, describing how it made the parturient woman un-

\*Discussion on a paper on Twilight Sleep read before the Aberdeen District Medical Society at Aberdeen, S. D., January 26, 1915.

conscious of the labor pains, and outlining the technic of its administration, as fully as such technic may be given for any single case. Very few cases are like any other case, and each must receive special and individual treatment.

The use of scopolamine in surgical anesthesia was very satisfactory so long as surgeons continued to use it, and adhered strictly to the proper administration of the drug; and those who have used it in child-birth cases have found it very satisfactory when used under the same rigid observance and proper technic.

Morphia, in very small quantities, with a very much smaller quantity of scopolamine, given hypodermically in divided doses, has rendered child-bearing a pleasure, rather than a very trying and painful ordeal, to thousands of women during the past ten or twelve years, and is destined to be a comfort to many thousand more.

In order to succeed with scopolamine in producing the Twilight Sleep, or painless child-birth, certain rules should and must be strictly observed.

First. The patient must, of her own volition, desire it and its benefits. It should never be urged upon her, and under no circumstances should she be forced to submit to it.

Second. The patient must be placed in proper and suitable surroundings to the end that she will not be disturbed by any one during the entire process of her delivery. This rule is best observed when none are allowed to be with her in the lying-in chamber except only her professional attendants, the physician, and nurse or nurses. Obviously this rule can best be observed in a properly appointed hospital.

Third. Under no circumstances should disturbing noises or sounds reach her ears, as the sense of hearing is very acute, and her ears sensitive to the slightest of these. She should not be spoken to, except in an undertone or audible whisper.

Fourth. There should not be a bright light in the room at any time when she is under the influence of the drug without special care being taken to protect her eyes from the direct or reflected rays.

Fifth. The bowels and bladder must be empty, as is necessary in all major surgical operations. The same care concerning the stomach is not necessary, as she will not vomit if the proper technic is strictly observed, even should it be necessary to administer chloroform or ether, if needed, as in case of surgical interference for the termination of the labor.

Sixth. The surgeon in charge should never leave the bedside or room, unless there is a nurse in attendance who has had sufficient experience in the use of the Twilight Sleep to give her perfect self-confidence, and has clinical knowledge of all symptoms that may arise so that she will always do the right thing, and particularly leave undone such things as might interfere with the successful results of the drug.

Seventh. The surgeon in charge should never presume to use any other drug or preparation, such as hyoscin or H. M. & C., said to be just as good as scopolamine. In the event that he does use some such substitute for scopolamine, he should not administer it under the guise of the Twilight Sleep, nor should he call the results obtained with the substitute, the Twilight Sleep, remembering always that Twilight Sleep is produced by the intelligent and skillful use of scopolamine, and nothing else.

If these seven rules are observed, together with many minor details that are very essential, and in many instances absolutely necessary, he will always have the satisfaction of witnessing and assisting at a painless child-birth, of which the woman will have no remembrance when she awakens, and which will free her mind of fear or terror concerning future pregnancies and labors.

My first experience with scopolamine was in the spring of 1906, when my associates and myself used it to a limited extent, just before surgical anesthesia in the case of a woman on whom I operated for the removal of an abdominal tumor. The patient was sleeping lightly when taken to the operating-table. She required a very small quantity of ether to complete a very satisfactory and successful operation.

Since then I have used it in many selected cases, both surgical and obstetrical. After nearly nine years experience with the drug, I can say only that which would be favorable, and in the highest praise of the usefulness of scopolamine.

In surgical anesthesia it is a great aid in reducing the amount of the anesthetic used and in minimizing the degree of excitement usually present during the early stages. It reduces the tendency to nausea and vomiting following extensive or minor operations. It produces a refreshing sleep after the patient is out of the influence of the anesthetic.

In child-birth I have never seen any untoward symptoms, such as I have seen mentioned in articles recently published,—i. e., post partum hemorrhage, cyanosis, heart depression, lessening of



the force of uterine contractions, or prolongation of the labor period. It is safe and very beneficial to the mother.

The child usually cries, and acts normal on delivery, and afterwards functionates like any other healthy baby.

A few years ago I tried the "just as good" article, hyoscin, a number of times and on several occasions, but never found the results as satisfactory in obstetrical cases or in surgical anesthesia, although I often use H. M. & C. in surgical cases where the exhibition of scopolamine is not convenient for lack of time or other reasons.

Hyoscin is said by the chemists and pharmacists to be identical, but I have found it to be very different therapeutically. It is not true scopolamine, and experience in the use of each will surely demonstrate the great difference.

The Twilight Sleep cannot be used with the highest success in private homes for reasons above stated, but in a hospital, such as St. Luke's here in Aberdeen, particularly in the new wing where the walls are deadened, where the building itself is remote from street-car lines, factories, and other sources of noise or disturbance, ideal surroundings can be secured for the proper use of Twilight Sleep.

Some private homes in Aberdeen have proved very satisfactory, and I have succeeded very well with its administration, but the position of the physician is not, generally speaking, a very enviable one while endeavoring to use the Twilight Sleep in most private homes.

It takes some time for a physician to familiarize himself with the technic and many necessary details of the Twilight Sleep; and none but those who have had large experience in the practice of obstetrics should attempt its use. The inexperienced physician should hesitate before making use of a method so little known, in a class of

cases with which he has little or no general and practical experience. Wisdom would dictate the safer course of getting a large obstetrical experience first; then, after reading and digesting well the literature treating on scopolamine, morphia, their various combinations and preparations, and the method of producing the Twilight Sleep by their use, he may, with safety, begin their exhibition in carefully selected cases, and with the use of minimum doses until he becomes familiar with the various effects of the drugs and the various phenomena that result from their use. A careful and experienced obstetrician is not likely to make mistakes in experimenting with the Twilight Sleep, particularly if he secures for his patient the most favorable surroundings possible.

It is needless to say that no well-informed and conscientious physician will undertake to use the Twilight Sleep without first making a thorough investigation of conditions to the end that he may be reasonably sure of the termination of the labor in a certain way, and that he is fully prepared, then and there, with the necessary skill and usual instruments with which to meet every emergency that might arise.

After being actively engaged in the practice of surgery, obstetrics, diseases of women, and general medicine over a quarter of a century, much of which time I have been connected with general hospitals and acquainted with large numbers of physicians and surgeons in this and other states, I find that I have no anxiety concerning the abuse of the Twilight Sleep, for I have learned to esteem the members of the medical profession so highly that I cannot believe there are many, if indeed there are any, who would allow themselves to endanger the fame and usefulness of Twilight Sleep by trying to make use of it without first being sure that they were masters of the complete and perfect technic and many details.

# DIVULSION OF THE PYLORUS FOR SPASTIC CONTRACTIONS AND CONSTRICTIONS DUE TO PATHOLOGICAL CHANGES CAUSING PARTIAL STENOSIS

By J. E. ENGSTAD, M. D., F. A. C. S.

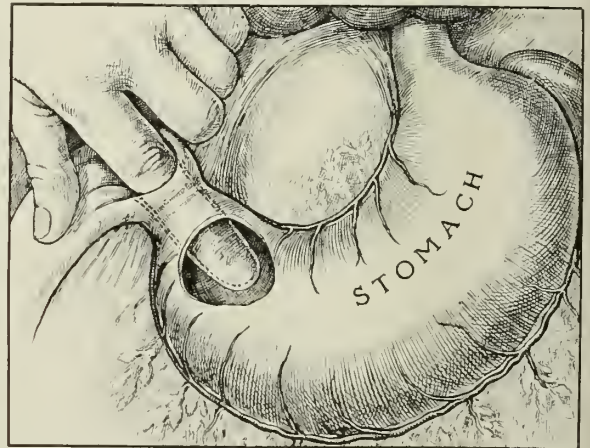
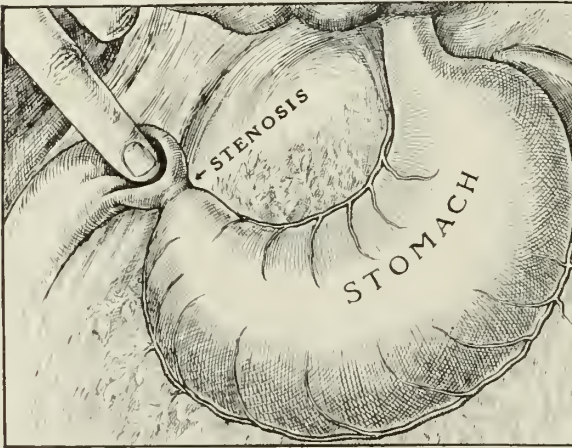
MINNEAPOLIS

In operating on the stomach we should always endeavor to conserve, as far as possible, the natural functions of the organ, anatomically, as well as physiologically. Artificial openings or channels from the viscus to the alimentary tract for disturbances of the functions of the organ, and continued retention of food, only increase the trouble if the operative procedure has not been performed in conformity with the physiological functions of the stomach. We know that the peristaltic waves of the walls of the stomach are towards the pyloric end. These waves may take the form of an hour-glass contraction, whereby the circular fibers of the greater curva-

ture tend to close even a large-sized opening of the classic gastro-enterostomy, causing disturbances that aggravate to a marked degree the disturbance of the digestive function for which the gastro-enterostomy was performed.

tention is the cause of marked chemical, biological, bacteriological, and ensymic changes from the normal of the stomach-contents and the primary cause of the microscopic trauma of the mucosa of the stomach or duodenum, which, upon becoming narcosed and infected, spreads through the tissues, and so we have an ulcer. A large average of cases of retention of food caused by a narrowing of the pyloric opening, are spastic in character, or are due to contraction of the scar-tissue that sometimes infiltrates deeply into the muscular fibers of the sphincter muscle.

Gastro-enterostomy, or some modification of it, has been the favorite operation for making larger



The opening in the stomach in the second illustration, is to illustrate the technic.

Innumerable operations have been devised for either temporary or permanent relief. The larger number, however, have been of a character which adds materially to the danger of the celiotomy. And, further, these operations have often been based on a false deduction of the physiological functions of the organ, and have, as a consequence, not fulfilled the expectations of their originators.

Retention of food due to obstruction, is the gross pathologic cause of a large percentage of ulcers of the stomach and duodenum. This re-

channels out of the viscus; and, generally speaking, surgeons have preferred the no-loop posterior form of it. A number of years ago, Loreta reported a series of cases in which he had dilated the pylorus by an incision through the anterior wall of the stomach. This dilatation for partial stenosis was fully described in the current medical literature of five years ago; but since then little has appeared on the subject, except descriptions of radical operative procedures.

Loreta's operation has the one great disadvantage of necessitating the opening of the stomach. This in itself may not be a dangerous thing at the hands of an expert surgeon; yet, we must admit, it adds materially to the risk. It occurred to me some years ago that a simpler method of meeting this difficulty could be devised. In cases of over-

spasticity of the pylorus and stomach with benign hypertrophy, due to stenosis or spasticity of the ring, a complete divulsion will speedily, effectually and permanently remove the causative factor of this distressing and often dangerous disturbance of the digestive tract.

My procedure is as follows: The index-finger of the left hand is inserted into or against the proximal side of the duodenal gut about an inch from the ring, pushing the anterior wall of the bowel up and against the sphincter ring, while, with the right hand, this part of the stomach is held firmly against the forefinger of the left hand in such a way that the finger will enter the ring, like a gloved member, inside the invaginated part of the duodenum.

This part of the operation must be done as carefully and gently as possible, so as to avoid traumatization of the bowel. After sufficient opening of a diameter to admit the index-finger, the thumb is introduced in the same manner as was the index-finger. This will thoroughly dilate, and to a certain extent paralyze, the muscles of the ring. Gentle stretching of the ring by pulling at its narrowest portion, will also tend to enlarge its caliber. The use of gauze in supporting the organs is not advisable. A rubber glove with a slightly roughened surface is all that is necessary to obtain a firm hold on the slippery peritoneal surface.

Quain has shown that handling the bowels with gauze may be followed by adhesions due to trauma from the sharp, hard fibers of the fabric.

Where Gaylord's bands are found, they should be severed after a complete survey of the abdominal contents. In a number of cases I have found these bands extending from the great ligament of the liver to the duodenum and transverse colon.

Where the organ is tied down from anatomical variation or from previous inflammation, this operation is not the one to choose, nor is it the one of choice where an ulcer of the duodenum is to be found within two inches of the pyloric cap. In such a case this operation is contra-indicated because of the extra risks incurred.

One of my first cases was Mrs. H., referred to me by Dr. Irwin, of Grand Forks, N. D. The patient was a very heavy woman, weighing nearly two hundred pounds, though she had lost consid-

erable weight during the four months previous to coming under my care.

After careful examination, gastric obstruction was diagnosed, due either to chronic cholelithiasis or to malignancy of the distal portion of the stomach. After the usual preparation, an incision was made. All organs were found normal with the exception of the stomach, which was enlarged and apparently hypertrophied. The pyloric ring was dense, and contracted to such a degree that on palpation between the thumb and the forefinger, no appreciable opening could be felt. Divulsion to a caliber of the diameter of the index-finger was performed. Recovery was complete and permanent.

One of my later cases, Mr. B., a young man of good habits, presented himself complaining of digestive disturbance. He volunteered that his case had been diagnosed by another physician as appendicitis. This was, of course, at once excluded.

After an extended period of observation, a diagnosis of pyloric obstruction due to spasticity was made, which conclusion was confirmed on section. The appendix, which was slightly enlarged, was amputated an inch from the cecum, and the stump partially split, and invaginated into the cecum, the object being to save part of its structure and the blood supply, thereby conserving the natural function of this little organ. Divulsion of the pylorus was performed. Recovery was complete.

In a series of twenty-two cases this operation has been performed instead of the classic no-loop posterior gastro-enterostomy.

This procedure is indicated where there is no evidence of ulcer of the duodenum at least an inch and a half or two inches from the pylorus or about the same distance in the pyloric end of the stomach.

It should be performed as a routine adjunct in all operations of the gall-bladder, as well as on a large number of non-infected cases of appendicitis. It would also be well to make a practice of examining the opening in all clean laparotomies; and, if the slightest indication warrants divulsion, this simple method can safely be resorted to, as it adds little to the risk, and may add greatly to ultimate recovery and health.



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## THE AMERICAN PUBLIC HEALTH ASSO- CIATION

The meeting of this Association took place in Rochester, N. Y., on September 6. It was held in conjunction with the Fifteenth Annual Conference of the Sanitary Officers of the State of New York, and about two thousand experts of public health were at the opening of the Conference.

On Tuesday, Governor Charles S. Whitman addressed the Association, and expressed his regret that the Legislature of New York had failed to provide sufficient funds for health work. The physicians and health officers throughout the State of Minnesota will join in prayer with Governor Whitman, and voice the same sentiments as regards the Minnesota State Legislature.

When men like Dr. Wm. C. Gorgas, Dr. Herman Mann Biggs (State Commissioner of Health of New York), and Dr. Geo. W. Goler (the prominent and widely known health officer of Rochester, N. Y.), get together, it means that an important meeting is in progress. The various phases of public health, and particularly the educative side of it, were a large part of the problems under discussion. The various diseases which attack the adult in his prime, particularly

the so-called degenerative diseases, which include heart, blood-vessels, and kidneys, received special attention. Cancer was also one of the leading subjects for consideration. Then, too, industrial hygiene, with the scientific management in industries, the increase of efficiency of the worker, and the diagnosis and prevention of occupational diseases were discussed by twenty experts in that line. The sociological section devoted its attention to the various phases of venereal disease, as well as the education through state, municipalities, schools, colleges, and private organizations, in order to prepare the public to see public-health work in its proper light. Sanitary engineering, sewage disposal, and prevention of water pollution was considered in their proper section. If this sort of work keeps on, it is fair to assume that after a time (time not stated) the public really may conclude that sanitarians are really trying to do some good, and perhaps we shall be able to get more help from our legislative bodies, but the elimination of politics from public health is a very difficult problem, and the politician will be the last man to succumb to the benefits of public health through educational sources.

The politician, as a rule, is for politics, first, last, and all the time, unless he is interested personally, or has had some bitter personal experience in preventable disease. Even then it is very difficult to turn his mind in the right channels. When public-health work becomes popular and when public-health departments seek the man, and not the man the department, it will be comparatively simple to organize opposition to the liquor traffic; for, with a sound and healthy constitution, and a reasonable enlightenment as to the benefits of the public welfare, it will put the liquor question where it belongs, in the educational and developmental growth of the country.

Minneapolis nearly arrived at a definite basis in the selection of its health commissioner, and the lay press tell us that Alderman Kean presented a novel suggestion in asking that the physicians of Minneapolis be requested to aid the Council in selecting a head for the Health Department. Acting Health Commissioner Guilford has been appointed until the first of January, 1916, and it will be interesting to note whether the Council will be willing to continue him in office without a political uprising. So far, Dr. Guilford has made an excellent official, and if he is allowed to carry out his proposed plans, the Council doubtless will re-appoint him for a definite period. It is unfortunate that such officials

are limited in their tenure of office. It keeps a health commissioner on the anxious seat most of the time to try to conciliate various persons. He invariably gets a good deal of advice from those who are not capable of giving it, and who know nothing about the subject; but, if the office is a political one, he must patiently hear complaints and suggestions which are unscientific and only hamper the progress of his work. It requires a good man to be an able administrator of public health. He must be fair and judicial; he must be fearless and scientific. He is rarely paid for this combination. He gets about the ordinary wage that is paid to the average workman, that is, below the skilled worker; for instance, a saw-filer gets from five to ten dollars per day for his services. It is rarely that a health officer gets anywhere near this amount. The unfortunate part of all this public-health work is, that there is not sufficient publicity given to it by the daily press. The press is more inclined to print the sensational side of medicine than the public-health side.

#### A STARTLING INNOVATION

The grand jury which recently met in Duluth, submitted its report to District Judge Fesler, and charged that the hospital authorities of St. Louis County are contributing to the cause of malpractice. It bases its charge upon the assertion that a person may enter "any of the hospitals and perform serious major operations, merely by representing himself as a surgeon."

They further claim that the standing of the physician or surgeon is not sufficiently well known to the hospital authorities, and that major operations are performed by inexperienced and incompetent operators, and, as a result, more than one patient has died from the operation.

The grand jury recommended that the State Legislature be requested to pass such legislation as will require every practicing physician to pass a vigorous state examination, and be licensed and registered. Very naturally, these charges have been received by Duluth hospital authorities with an emphatic protest, and Bishop James McGolrick, formerly of Minneapolis, who is head of St. Mary's Hospital in Duluth, claims that the conditions are really opposite to what has been said by the grand jury. The Bishop says that the younger physicians are inexperienced simply because they are not given a chance by the older doctors. This does not seem to the medical mind as a very strong argument, because it naturally

follows that a young, inexperienced surgeon must have an opportunity to operate or practice before he becomes at all experienced. If the grand jury will look carefully into this matter, they will find that the average interne or assistant in a hospital is working with an older man, and, if he has the real stuff in him, he will so work until he has a working foundation, until he has gained enough experience and confidence in himself to do his work reasonably well.

On the other hand, there is much to be said as to the charge brought against hospital authorities, and it is perfectly true that incompetent, inexperienced, and so-called surgeons are permitted to operate in various hospitals who have no business to do so. We think there can be no dispute that many hospitals and staff men will realize that occasionally a poor surgeon, sometimes a bad surgeon, gets into the hospital, but he does not get on the staff. Any hospital of repute has upon its staff only men who are competent to do its work; and there is just as much care in the selection of the staff as there would be in the selection of associates in any kind of business. However, the fact remains that poor surgery is done by poor men in hospitals, and it is very difficult sometimes to eliminate this factor. As a matter of fact, it is not the fault of the individual who chooses the surgeon, but it is the poor surgeon's who is not wise or gracious enough to admit his limitations. The result is, that he undertakes something that he is fully unfitted for.

Of course, there may be something back of this Duluth matter of which we know nothing. It is possible that someone has a grudge against the hospital. It is possible that someone has had some unpleasant experience with a young and inexperienced surgeon, or with a surgeon with experience where the results have been unexpectedly bad; but these things will happen. It is quite possible that quacks or men of unknown quality have by some means forced themselves into the hospitals, and are practicing surgery when they ought to be digging in the fields. It is possible, too, that the American College of Surgeons is interested in the matter, and is endeavoring to weed out men whom they feel are incompetent. This is a dangerous proposition unless it is handled with great delicacy. Minneapolis hospitals have had the same experience that has been commented upon in Duluth. Incompetent surgeons have operated until their death-record was so high that either the chiefs of staffs or the combined staff of directors of the hospital have had

to request them to discontinue operating. Perhaps a little better way is for the superintendent to find that all of the rooms are occupied, and that no room is available for the unworthy surgeon. This is a very gentle way of telling them to get out, but it is often very effective.

Some time ago in an adjoining state, a prominent surgeon, was sent to investigate the status of small hospitals, and he chanced one day to find the chief surgeon of a hospital operating upon a hernia case. After the operation was over, the operator turned to the visiting surgeon, and said: "Doctor, what is the average mortality in hernia cases like this?" The visitor very frankly replied that the mortality of patients operated upon as he had done was from ninety-five to ninety-nine per cent; but ordinarily from two to three per cent.

These questions of hospital management, of hospital appointments, the make-up of staffs, etc., should be discussed at our State and National Association meetings.

In Canada, in the principal hospitals, a staff is carefully selected, and every patient who goes into that hospital is obliged to select some member of the staff as his surgeon. The patient does not have the privilege of calling in his own physician or surgeon, but must depend upon the services of the regularly appointed and carefully selected staff men. This, of course, causes a little unpleasantness on the part of those who are not on the staff, but the mortality records of the hospital are invariably better than when anyone and everyone is allowed to operate in the hospital.

#### ANIMAL LIFE AND HUMAN LIFE

The following is a clipping from the *Minneapolis Daily News* in its editorial column, which we earnestly recommend to our readers, and ask them to disseminate it as widely as possible:

##### JUST SUPPOSING

When the state or federal government pays stockmen for animals killed to check an epidemic among live stock, it is taken as a matter of course.

Suppose, as a variation of this plan, cities and villages should pay for human lives unnecessarily sacrificed through failure to protect the public health.

It has been said that a case of typhoid fever is conclusive evidence of criminal neglect for which someone should pay a heavy penalty.

Suppose that the courts should decide that a human life is worth \$10,000 cash money; that a city must reimburse the family at this rate for deaths caused from typhoid fever when it was shown that the disease was contracted by conditions which the health officials could control.

Suppose the courts accepted as conclusive evidence of public liability such things as these:

Polluted water supply.

Existence of manure piles, and other breeding places of the "typhoid fly."

Careless sewage disposal.

Existence of privies and wells in communities where sewer system and water works are practical.

Suppose a town having any of these conditions and having, say, ten typhoid deaths a year, had to pay \$100,000 a year for the slaughter of the humans.

How long would it take the city to enforce health regulations?

## CORRESPONDENCE

### A CORRECTION

TO THE EDITOR:

On page 486 of *THE JOURNAL-LANCET* (September 1, 1915), you speak of the death of "Dr. Charles E. Finley," of Havana, Cuba, and say he was the man who discovered the mosquito origin of yellow fever, and who made it possible to eradicate yellow fever from Cuba.

I would like to call your attention to the fact that this man's name is Dr. Carlos Finlay, and that on page 17 of Senate Document No. 822, "Yellow Fever: a Compilation of Various Publications," the following sentence occurs: "Dr. Reed then determined to investigate the theory of Dr. Carlos Finlay, that the mosquito was instrumental in conveying yellow fever, which theory Finlay had failed to demonstrate, and which was not then accepted by scientific men."

In conclusion, I wish to say that the commission known as the "Yellow Fever Commission," composed of Major Reed, Acting Assistant Surgeons James Carroll, Jesse W. Lazear, and A. Agramonte, were the discoverers of the mosquito origin cause of yellow fever, and that Major W. C. Gorgas, Medical Department, United States Army, while chief sanitary officer in Havana in 1901, instituted measures to eradicate the disease, based entirely on the conclusions of the commission.

Yours truly,

J. S. WHITE, M. D.

St. Paul, Sept. 2, 1915.

Dr. White has our thanks for this correction and for the additional information he communicates.

The editor finds himself in good company in his error, for the *Scientific American*, just at hand, likewise gets the name of Dr. Finlay awry. Writers,—editors, as well as contributors,—can-



not be too careful in the matter of names; and we find it rarely safe to copy any name from articles or items going the rounds of the press, lay or scientific, for the types play tricks even with the most carefully prepared manuscript.

THE EDITOR.

## NOVOCAIN AND ITS DANGERS

TO THE EDITOR:

I wish to thank you for your editorial, "Novocain and Its Dangers," which appeared in the last number of your valued paper.

Calling attention to the necessity of properly diluting this drug is, it seems to me, very proper at this time. I would hardly agree, however, that there is more danger from injecting the drug beneath the mucous membranes than there is from injecting it beneath the skin. Undoubtedly, there is danger from the improper use of novocain, and there is at least one fatality reported, and I know personally of a death which occurred recently, which, I believe, however, has not been reported in the literature.

My reason for addressing this communication to you is, that I believe that novocain, instead of being a dangerous drug, is an absolutely safe one, if properly administered. Proper dilution, avoiding the injection of the drug directly into the circulation, and the prevention of too rapid absorption of the drug, will positively eliminate all chance of danger-symptoms arising.

In case these rules are not sufficiently rigidly adhered to, and danger-symptoms arise, the value of ether as an antidote should not be overlooked. Dr. J. E. Engstad was the first, I believe, to call attention to the efficiency of ether as an antidote.

Another point: You call attention to the fact that Merck gives the maximum dose of novocain as approximately eight grains. I would like to state that there is practically no maximum dose of novocain, unless it be taken directly into the circulation, when the dose is very much less than that named by Merck. Allan has given thirty-eight grains of novocain to an adult, and I have given forty grains in a dilution of one-half of one per cent without any toxic symptoms whatsoever. In this regard, a dose of novocain, like that of cocaine and other drugs of this class, cannot be measured by weight.

Very truly,

R. E. FARR, M. D.

Minneapolis, Sept. 8, 1915.

## MISCELLANY

MINNESOTA PUBLIC HEALTH ASSOCIATION  
AND MINNESOTA STATE SANITARY  
CONFERENCE COMBINED PROGRAM  
AT ROCHESTER, SEPTEMBER  
29, 1915

Morning, Afternoon, and Evening Sessions.

10 A. M.

A Study of an Epidemic of Appendicitis and Parotitis.

By Dr. E. C. Rosenow, Mayo Clinic.

Discussion:

Dr. H. E. Robertson, University of Minnesota.

Dr. J. F. Corbett, University of Minnesota.

The Clean Milk Problem.

(a) How Winona Solved it.

By Dr. R. W. Archibald, Dairy Inspector,  
Winona.

(b) Dairy Sanitation in Minnesota.

By Commissioner J. J. Farrell and Inspector O.  
F. Peehl, State Dairy and Food Department.

Discussion:

Dr. J. T. Christison, Secretary Ramsey County Milk  
Commission, St. Paul.

Mr. H. A. Whittaker, Director Division of Sanita-  
tion, State Board of Health.

Certain Chronic Pathological Changes of Middle Life.

By Dr. L. B. Wilson, Mayo Clinic.

Discussion:

Dr. W. J. Mayo, Rochester.

Dr. S. Marx White, University of Minnesota.

2 P. M.

Community Control of Tuberculosis.

By Dr. A. T. Laird, Superintendent Nopening Sana-  
torium.

Discussion:

Dr. H. L. Taylor, President State Advisory Commis-  
sion, St. Paul.

Dr. W. J. Marcey, Attending Physician, Hopewell  
Hospital, Minneapolis.

Dr. G. S. Wattam, Warren.

School and Municipal Health Nursing.

By Miss Alma Wretling, R. N., School Nurse,  
Albert Lea.

Discussion:

Dr. W. L. Mercer, Superintendent Schools, Olm-  
sted County.

Mr. B. M. Cosgrove, Superintendent Schools, St.  
Peter.

Dr. N. C. Bulkley, Health Officer and Medical  
Supervisor Schools, Eveleth.

## The Control and Prevention of Typhoid Fever.

- (a) Disposal of Sewage in Camps, on Farms and in Unsewered Villages.

By Prof. F. H. Bass, Professor of Municipal and Sanitary Engineering, University of Minnesota.

- (b) The Detection and Management of Typhoid Carriers.

By Dr. H. W. Hill, Director Institute of Public Health, London, Ontario.

- (c) Vaccination Against Typhoid.

By Dr. C. C. Burlingame, Assistant Superintendent Fergus Falls State Hospital.

## Discussion:

Dr. Paul B. Cook, St. Paul.

Dr. A. J. Chesley, Director Division of Preventable Diseases, State Board of Health.

## PUBLIC ADDRESSES

8 P. M.

## The Newer Public Health and Minnesota's Health Needs.

Hon. W. S. Hammond, Governor of Minnesota.

President Geo. E. Vincent, University of Minnesota.

## PROGRAM OF THE MINNESOTA STATE MEDICAL ASSOCIATION

SEPTEMBER 29

House of Delegates meets at Medical Library at 2 P. M.

SEPTEMBER 30, 9 A. M.

## PRESIDENT'S ADDRESS

Dr. J. T. Rogers - - - - - St. Paul  
Radium in Dermatology

Dr. S. E. Sweitzer - - - - - Minneapolis

*Abst.*—Action of radium on the skin. Shape of applicators and technic of application. Amount of radium necessary. Diseases especially adapted to radium therapy; naevi, epithelioma, lupus and erythematosis. Case-reports.

## Syphilis

Drs. N. Linneman and E. L. Tuohy - - - Duluth

*Abst.*—Analysis and grouping of a considerable number of cases. Relation of syphilis to other pathological states. Deductions based upon the results of various forms of treatment.

## Clinical Observations in Luetic Disease of the Heart and Aorta

Dr. R. D. Mussey - - - - - Rochester

*Abst.*—Report of 59 cases of luetic disease of the heart and aorta: aortitis, 18; aneurysm, 25; heart, 11; mediastinal thickening, 5. Main symptoms of each group and the physical findings in a general way. Methods and results of treatment.

## Autografts in Infected Fields

Dr. A. A. Law - - - - - Minneapolis

*Abst.*—It is contended that autogenous transplants show an appreciable degree of resistance to

chronic tubercular or pyrogenic infections, or where the host has established immunity to the infective process, therefore, in exceptional cases, autografts are not absolutely contra-indicated in such old infected fields.

## Infections of the Hand and Fingers

Dr. W. F. Heise - - - - - Winona

SEPTEMBER 30, 2 P. M.

## Address on Surgery: Open Air Treatment in Surgery

Dr. J. W. Markoe - - - - - New York

## The Examination, Preparation, and Care of Surgical Patients

Dr. C. H. Mayo - - - - - Rochester

## Laminectomy under Local, not Spinal, Anesthesia

Dr. A. C. Strachauer - - - - - Minneapolis

## Local Anesthesia

Dr. L. E. Daugherty - - - - - St. Paul

## Clinical Observations and Deductions of Some Obscure Infections

Dr. A. E. J. Sohmer - - - - - Mankato

*Abst.*—Infectious origin, often obscure, of some acute, subacute, and chronic diseases, such as arthritis, endocarditis, appendicitis, gastroduodenal ulcer, pancreatitis, colitis, pyelonephritis, bronchial asthma, chorea, and septicaemia. Nidus of infection. Relation of thyroid gland to infections. Prevention of recurrence. Factors upon which a complete cure is dependent.

## The Prone Position and Its Uses

Dr. M. M. Ghent - - - - - St. Paul

*Abst.*—Various conditions, such as resuscitation of the new-born, bronchopneumonia in children, and one other condition never before described, can be best treated in the prone position.

## Race Betterment

Dr. L. E. Claydon - - - - - Red Wing

*Abst.*—Euthenics and eugenics defined. Our responsibility to the community and the State for prevention of disease and the improvement of social conditions.

OCTOBER 1, 9 A. M.

## Address on Medicine: Prophylaxis and Treatment of the Nephritides

Dr. M. H. Fischer - - - - - Cincinnati

## Embryology and Medicine

Dr. C. M. Jackson - - - - - Minneapolis

*Abst.*—Importance of embryology as a fundamental medical science. Comparative value of experimental versus morphological methods of study. How the practitioner may co-operate with the laboratory investigator in advancing our knowledge of human embryology.

## An Analytical Review of 400 Pneumonias

Dr. J. G. Cross - - - - - Minneapolis

*Abst.*—Pneumonia is not decreasing. Statistics

show less advance in treatment than in cancer and tuberculosis. Mortality by age-periods. Percentage of recoveries by lysis; by crisis. Date of crisis. Internal symptoms. Urine findings. Location of consolidation. Leucocytosis.

Medico-Surgical Management of the Diabetic Patient  
Dr. D. M. Berkman - - - - - Rochester

*Abst.*—Report of a year's surgery on diabetic patients. Routine method of preparation for, and care after, operation. A probable value of the determination of blood sugar percentage.

#### Appendicitis

Dr. A. C. Baker - - - - - Fergus Falls  
Medicine and the State

Dr. Cornelius Williams - - - - - St. Paul

*Abst.*—Duty of the State to defend and care for its citizens in all and every way: To establish and maintain preparatory and finishing schools for the teaching of medicine and surgery; to establish hospitals and create a system of State aid for the sick in hospitals and at home. Eventually only State physicians to practice. Staff paid and pensioned by the State.

#### Compensatory or Ectopic Menstruation

Dr. W. H. Condit - - - - - Minneapolis

*Abst.*—Early history of ectopic menstruation. Some theories of the physiology of normal and ectopic menstruation. Report of case under observation for nine years. Synopsis of the embryology of normal and abnormal menstruation.

OCTOBER 1, 2 P. M.

#### ADDRESS

Dr. W. L. Rodman - - - - - Philadelphia, Pa.  
President, American Medical Association

The Preventable Field: Relation of the Practicing Physician, the Local and State Health Officer

Dr. I. J. Murphy - - - - - St. Paul

*Abst.*—Survey of the preventable diseases which are most prevalent in Minnesota: tuberculosis, pneumonia, accidents, cancer, child diarrhea, etc. The opportunity for propaganda by the practicing physician, especially in the field of cancer and child diarrhea. Propaganda in the distinctly communicable field should be carried on more extensively by both local and State officials.

Perforating Ulcer Following Gastro-enterostomy

Dr. Arthur Collins - - - - - Duluth

*Abst.*—Inefficiency of gastro-enterostomy to cure in certain cases; report of case; rarity of this specific type; its kinship to other peptic ulcers; discussion of literature.

Varicose Veins and Ulcers: Surgical Treatment and Results

Dr. D. C. Balfour - - - - - Rochester

*Abst.*—Various types of operation. Description of the routine operation used at the Mayo Clinic

with a tabulation of end-results. Comments on Statistics.

Internal Secretions in Relation to Neurology and Psychiatry

Dr. E. M. Hammes - - - - - St. Paul

*Abst.*—Psychosis due to functional insufficiency and hyper- or dys-function of the thyroid gland. Case-history. Mental and nervous symptoms which occur, due to perverted secretions of the pituitary gland, the suprarenal capsules, and other internal secretory organs.

Colored Drawings Illustrating Diseases of the Pharynx

Dr. J. D. Lewis - - - - - Minneapolis

Semeiotic Significance of Pathological Findings of Adult

#### Feces

Dr. C. P. Robbins - - - - - Winona

*Abst.*—Suggestions regarding diseases and disorders of the intestine and adnexia, based upon the examination of the feces, and corroborating the subjective and objective findings.

## BOOK NOTICES

OPERATIVE GYNECOLOGY. By Harry Sturgeon Crossen, M. D., F. A. C. S. First edition. Published by C. V. Mosby Company, St. Louis, Mo., 1915. 670 pages. 770 original illustrations. Cloth, \$7.50 net.

The above work is a masterpiece from the illustrative standpoint, both anatomically and gynecologically. The text is clear and to the point of description. Each step in each operation illustrated, is concisely described. There are but few original operations or methods recommended; nor is the reader confused by the description of a number of operations and operators' modifications of classic methods, for the author has selected the best technic and illustrated it admirably.

It is suggested by the publishers that the work would be invaluable to the young graduate, the interne in hospital assisting in general surgery, and the assistant or beginner in gynecological surgery. The operator will find the work a very valuable reference book, for a review of the steps of an operation he has in view.

There are a number of chapters on indications for operations which are so good that the reader will regret that the author did not devote more time to that subject.

As a whole, the work is one of descriptive, illustrated technic, and is recommended as a valuable work for the advanced student and an invaluable reference book for the general or the gynecological surgeon.

—CONDIT.

THE CANCER PROBLEM. By W. S. Bainbridge, M. D., New York. The Macmillan Company, 1914.

The author gives special attention to the etiology and treatment of cancer and the results of modern cancer research. Other chapters are devoted to cancer statistics, the investigation of "cancer cures," histopathology, etc.

Perhaps the best chapter is the one devoted to modern



cancer research. The author reveals a close acquaintance with the problems confronting the modern investigator, as well as familiarity with the results that have been obtained.

The thorough scientific presentation of the non-surgical and surgical treatment of cancer is one of the best features of the book. Both physiotherapy and biotherapy are ably discussed. The extensive bibliography will appeal to persons engaged in cancer research.

This volume should be of great interest to all classes of the medical profession, since it presents, in a clear, concise form, our present knowledge of the cancer problem.

—E. T. BELL.

**PRACTICAL MATERIA MEDICA AND PRESCRIPTION-WRITING**, with illustrations. By Oscar W. Bethea, Assistant Professor of Materia Medica in Tulane University, Louisiana. Price, \$4.00 net. Published by the F. A. Davis Company.

The book is divided into three parts. Part I, the chief portion of the book, treats of materia medica, and includes a complete list of all official drugs and a few others often used. A brief description of each agent is given,—its official preparations, its therapeutic action, and its uses and mode of administration. These data are as reliable perhaps as can be given, being substantiated by references at the bottom of pages to standard works on pharmacy, materia medica, and practical medicine. Illustrations of the best combinations for administering each drug are freely given as an aid also in prescription-writing.

Part II is devoted to prescription-writing. The metric system, abbreviations, medical Latin, arrangement of inscription, indeed, every particular of correct prescription-writing, receives proper attention.

In Part III a large number of prescriptions are given in a manner to illustrate the common errors of prescription-writing.

The book has real merit. It is of value to the practitioner, be he young or old, as a concise and ready reference book.

—STUART.

## NEWS ITEMS

Dr. Thor Peterson, of Gaylord, has moved to Minneapolis.

Dr. Raymond Delmas, of Hugo, has moved to Floodwood.

Dr. J. G. Kennedy, of Durant, S. D., has located in Oklahoma.

Dr. George H. Shrodes, of Waterville, has located at Delano, Cal.

Dr. C. P. Robbins, of Winona, is taking post-graduate work in Philadelphia.

Dr. J. L. Devine, formerly of Lansford, N. D., has taken up practice in Minot, N. D.

Dr. John A. Evert, of Brainerd, was married last month to Miss Pearl A. Nash, of Pipestone.

Drs. J. T. Kilbride and L. J. Holmberg, both of Canby, have formed a partnership at that place.

Dr. E. D. Spear, of Nome, N. D., died recently at Fargo of acute Bright's disease, at the age of 54.

Dr. Ray D. Gardner, of Badger, has moved to Eveleth, where he has taken a position in a hospital.

The town of Lindstrom is to have a pulmotor as the result of subscription work started by Dr. O. S. Werner, of that place.

Dr. J. F. Hanna, a graduate of Marquette, has taken over the practice of Dr. J. L. Savage, of Fargo, who will locate elsewhere.

The headquarters of the Minnesota State Medical Association during its annual meeting at Rochester will be at the Zumbro Hotel.

Dr. W. A. Stewart, of Omamee, N. D., one of Bottineau County's oldest physicians, was killed on August 31 in an automobile accident.

Dr. T. J. Strong, of Enderlin, N. D., has turned his practice over to Dr. S. A. Neese, of the same place, that he may take a vacation of several months.

Dr. J. P. Hiebert, of Minneapolis, has been appointed assistant instructor in the department of surgery at the Medical School of the University of Minnesota.

The new \$15,000 hospital at Thief River Falls was opened the first of this month. At present the hospital has twenty-five beds, but ten more may easily be added.

Dr. A. J. Chesley and Mr. A. J. Whittaker attended the American Public Health Association at Rochester, N. Y., as representatives of the Minnesota State Board of Health.

The ninth annual meeting of the Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association will be held in the Hotel Radisson, Minneapolis, December 7 and 8, 1915.

As a tribute to twenty-one years spent in ministering to the sick at St. Joseph's Hospital of St. Paul, more than one thousand persons attended the funeral services of Sister Aida, who died at the Hospital on August 25.

Dr. F. C. Davis, of Minneapolis, has returned from Vienna, where he has been since the war broke out. In an interview with Dr. Davis, published in the daily papers, he says that American doctors have little opportunity to do work at the front.

The State Sanitary Conference of Minnesota will hold its annual meeting at Rochester on the 29th instant. The proposal to merge the Conference with the Minnesota Public Health Association, which the directors of the latter organization favor, will be considered.

Dr. I. J. Murphy, Secretary of the Minnesota Public Health Association, will be a delegate to the sectional conference of the National Anti-Tuberculosis Association to be held at Indianapolis, September 29, 30 and October 1. Seventeen states will be represented at this conference.

The Red River Valley Medical Society held a quarterly meeting at Warren last month. Dr. A. R. Colvin, of St. Paul, and Dr. Theo. Bratrud, of Warren, read papers. A full discussion of the papers followed. A good attendance and an excellent banquet made an enjoyable meeting.

Dr. R. H. Mullin, Director of the Division of Sanitation of the Minnesota State Board of Health and a member of the teaching staff of the State University, has gone to the University of Nevada as bacteriologist. He will also be closely associated with the Nevada State Board of Health. Nevada is to be congratulated.

Dr. Richard J. Church, of Park River, N. D., died last month at the age of 44. Dr. Church graduated from Hamline, class of '95, and began practice at Lankin, N. D. Although he had practiced only a few years in Park River, he was greatly beloved by the entire community, and the local press speaks of him in the highest terms of praise.

The Minnesota Institute of Homeopathy will meet in St. Paul on Monday and Tuesday, September 27 and 28. Dr. A. F. Goodrich is president, Dr. H. O. Skinner is secretary, and Dr. H. M. Lufkin is chairman of the local committee of arrangements. The program includes an address by Prof. Frank Wieland, of Chicago, in addition to the usual scientific papers, banquet, etc.

#### WANTED—TWO INTERNES

At the Norwegian Deaconess Hospital, Minneapolis. This hospital is a general hospital, new and up to date with 100 beds. Address application to Dr. A. C. Tingdale, Syndicate Building, Minneapolis.

#### LOCUM TENENS WANTED

I want a regular physician to take my practice for three and a half months. Must be a man with at least one year of experience in either general or hospital work. Will pay good salary. Address 256, care of this office. Good location in east central North Dakota.

#### LOCUM TENENCY WANTED

A recent graduate, who has had experience, wishes work until January 1. Can give references. Address 255, care of this office.

#### ASSISTANTSHIP WANTED

I wish a position in or near the Twin Cities that I may devote part of my time to, and have time left for, postgraduate work. Might consider a locum tenency or institution work. Address 254, care of this office.

#### PRACTICE FOR SALE

Good location in most central part of North Dakota; collections over 98 per cent. \$500 to \$800 will handle the deal. A good opportunity for a good man. Address 250, care of this office.

#### OFFICE ASSOCIATE WANTED

Eye, ear, nose, and throat man wanted to office with general practitioner on Lake Street, Minneapolis. American preferred. Fine opportunity; good field. Address 248, care of this office.

#### APPARATUS FOR SALE CHEAP

Betz Galvanic and Faradic Wall Cabinet, oak finish and bevel-plate glass; also 50 wet cells; 1 Betz Giant Cautery; 1 small hand Vibrator; a variety of surgical instruments. Owner recently deceased. Address 252, care of this office.

#### LOCATION WANTED

Twenty-five dollars will be given for information leading to a satisfactory location in Minnesota, or a state reciprocating with Minnesota, by a physician of eight years' experience in general practice. Address 251, care of this office.

#### PRACTICE FOR SALE

Practice of \$3,500 to \$4,000 in town of 1,000, located 40 miles from Minneapolis. Collections, 95 per cent; competition, right. \$500 takes first-class office equipment and practice. Reason for selling, moving to city. Address 247, care of this office.

#### LOCATION OFFERED

Wanted, a doctor to locate in a small town in North Dakota of about 250. Good large territory on the east with fair territory on the other sides. Rich farming country all around. A good building and fixtures for a stock of drugs can be procured or rented very reasonable. For more data write the State Bank of Alice, Alice, N. D.

#### PRACTICE FOR SALE

Northwestern Minnesota, unopposed village and country practice averaging better than \$400 per month; collections, 95 per cent; good roads; splendid crops; railroad and insurance appointments; nearest competition, 8, 15, 20, 26 miles. Office equipment, \$300; drugs at invoice; nothing else to sell. Have made good, and am going to a surgical field. A splendid opening for a capable man. If you mean business let me hear from you promptly. Address 249, care of this office.

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada .....	1,253	1,432	0															
Albert Lea .....	4,500	6,192	6	1														
Alexandria .....	2,681	3,001	6	1														
Anoka .....	31,769	3,972	8															2
Austin .....	5,474	6,960	4			1												
Barnesville .....	1,326	1,352	1															
Bemidji .....	2,183	5,099	5															2
Benson .....	1,525	1,677	2															
Blue Earth .....	2,900	2,319	0															
Brainerd .....	7,524	8,526	13			3												
Breckenridge .....	1,282	1,840	2					1										1
Canby .....	1,100	1,528	*															
Cannon Falls .....	1,239	1,385	4															
Chaska .....	2,165	2,050	3															
Chatfield .....	1,426	1,226	1															
Cloquet .....	3,074	7,031	8	1														
Crookston .....	5,359	7,559	5	1														
Dawson .....	962	1,318	1															
Detroit .....	2,060	2,807	6															
Duluth .....	52,968	78,466	73	6			1											
East Grand Forks .....	2,077	2,533	4	1														
Ely .....	3,572	3,572	1	1														
Eveleth .....	2,752	7,036	8		1													1
Fairmont .....	3,440	2,958	5															
Faribault .....	7,868	9,001	6															
Fergus Falls .....	6,072	6,887	10			3												
Glencoe .....	1,788	1,788	2															
Glenwood .....	1,116	2,161	1															
Granite Falls .....	1,454	1,454	1															
Hastings .....	3,811	3,983	5															
Hutchinson .....	2,495	2,368	1															
International Falls .....		1,487	6		1													
Jordan .....	1,270	1,151	0															
Lake City .....	3,142	3,142	4	1														
Le Sueur .....	1,937	1,755	3			1												
Little Falls .....	5,774	6,078	7	1		1												1
Luverne .....	2,223	2,540	1		1													2
Madison .....	1,336	1,811	2															
Mankato .....	10,559	10,365	16	1	1	1												
Marshall .....	2,088	2,152	2															
Melrose .....	2,591	2,591	0															
Minneapolis .....	202,718	301,408	280	35	6	19	3	1	2			2						18
Montevideo .....	2,146	3,056	4		1													
Montgomery .....	979	1,267	2															
Moorhead .....	3,730	4,840	1															
Morris .....	1,934	1,685	1															
New Prague .....	1,228	1,554	0															
New Ulm .....	5,403	5,648	7	2														
Northfield .....	3,210	3,215	4															
Ortonville .....	1,247	1,774	4															
Owatonna .....	5,561	5,658	6															
Pipestone .....	2,536	2,475	0															
Red Lake Falls .....	1,666	1,666	2															
Red Wing .....	7,525	9,048	13	1	1	1												
Redwood Falls .....	1,661	1,666	0															
Renville .....	1,075	1,182	2															
Rochester .....	6,843	7,844	39	1														
Rushford .....	1,100	1,011	0															
St. Charles .....	1,304	1,159	2															
St. Cloud .....	8,663	10,600	17															
St. James .....	2,102	2,102	3															
St. Paul .....	163,632	214,744	189	16	6	20	5	3	2			4						21
St. Peter .....	1,430	4,176	1	1														
Sauk Centre .....	2,154	2,154	3															
Shakopee .....	2,046	2,302	3															
Sleepy Eye .....	2,046	2,247	0		1													
South St. Paul .....	2,322	4,510	2															
Staples .....	1,504	2,558	1															
Stillwater .....	12,318	10,198	6	1														
Thief River Falls .....	1,819	3,174	7	1		1												
Tower .....	1,111	1,111	1															
Tracy .....	1,911	1,826	3															
Two Harbors .....	3,278	4,990	5			2												
Virginia .....	2,962	10,473	3															
Wabasha .....	2,622	2,622	7	1														
Warren .....	1,276	1,613	4															
Waseca .....	3,103	3,054	0															
Waterville .....	1,260	1,273	3	1														
West St. Paul .....	1,830	2,660	1															
Willmar .....	3,409	4,135	4	1	1													
Winona .....	19,714	18,583	2		1													
Winthrop .....	813	1,043	19			1	1						1					1
Worthington .....	2,386	2,385	2															



REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	0															
Aitkin	1,719	1,633	0															
Akeley			0															
Appleton	1,184	1,221	0															
Belle Plaine	1,121	1,204	3	1														
Biwabik		1,690	3	2														
Bovey		1,377	0															
Browns Valley	721	1,058	1															
Buffalo	1,040	1,227	1															
Caledonia	1,175	1,372	0															
Cass Lake	546	2,011	1	1														
Chisholm		7,684	10	2	1		1								1	1		1
Coleraine		1,613	1												1			
Delano	967	1,031	2															
Farmington	733	1,024	5													2		
Fosston	884	1,055	1															
Frazee	1,000	1,645	0															
Grand Rapids	1,428	2,239	2															
Hibbing	2,481	8,832	14				1				2				2	1		3
Jackson	1,756	1,907	2															
Janesville	1,254	1,173	1															
Kenyon	1,202	1,237	3							1								
Lake Crystal	1,215	1,033	4	1														
Litchfield	2,280	2,333	2															
Long Prairie	1,385	1,250	4														1	1
Madelia	1,272	1,273	0															
Milaca	1,204	1,102	1															
Mountain Lake	959	1,081	0															
Nashwauk		2,080	0															
North Mankato	939	1,279	0															
North St. Paul	1,110	1,404	2													1		
Osakis	917	1,013	1															
Park Rapids	1,313	1,850	3	1														
Pelican Rapids	1,033	1,019	2								1							
Perham	1,182	1,376	2															
Pine City	993	1,258	0															
Plainview	1,038	1,175	1															
Preston	1,278	1,193	2															
Princeton	1,319	1,555	2				1											1
St. Louis Park	1,325	1,743	1															
Sandstone	1,189	1,818	2													2		
Sauk Rapids	1,391	1,745	3															1
South Stillwater	1,422	1,343	1													1		
Springfield	1,511	1,482	1															
Spring Valley	1,770	1,817	0															
Wadena	1,520	1,820	0															
Wells	2,017	1,755	6	1									1			1		
West Minneapolis	2,250	3,022	2	1														
Wheaton	1,132	1,300	2													1		
White Bear Lake	1,288	1,505	1															
Windom	1,944	1,749	*															
Winnebago City	1,816	2,555	1	1														
Zumbrota	1,119	1,138	0															

## STATE INSTITUTIONS

Anoka, Asylum	2	2																
Faribault, School for Blind	0																	
Faribault, School for Deaf	0																	
Faribault, School for Feeble Minded	0																	
Fergus Falls, Hospital for Insane	5	1											2					
Hastings, Asylum	10	1	2															1
Minneapolis, Soldiers' Home	0																	
Owatonna, School for Dependents	0																	
Red Wing, State Training School	0																	
Rochester, Hospital for Insane	11	2																
Sauk Centre, Home School for Girls	0																	
St. Peter Hospital for Insane	10	2														2		
St. Cloud, State Reformatory	0																	
Stillwater, State Prison	2																	

## OTHER PARTS OF STATE

661	76	18	34	3	1	2		7	1	1	1	11	47	2	67
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Total for state	1679	170	42	93	13	7	7	0	19	2	3	6	34	132	5	144
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\*No report received. Registrar not doing his duty.  
122 stillbirths not included in above totals.



# The Battle Creek Method of Treating Cases of Drug Addiction

**Alcohol, Opium, Cocaine, Tobacco and Other Drug Habits**

The Battle Creek Sanitarium is not an inebriate asylum. Cases requiring physical restraint or likely to disturb other patients are not received. For a large class of intelligent persons who have through suffering become entangled in the toils of a drug habit and who are ready to co-operate with a rational effort to deliver them from the drug and from its effects the Battle Creek Sanitarium Method offers a rational, safe and remarkably comfortable means of relief and without publicity.

This is not a drug method. Drug methods often leave the patient's nervous system shattered and his condition so wretched that he is very liable soon to drift back into the old habit.

There are no tricks of hypnotism or "suggestion" in the Battle Creek Method. The rational and physiologic means employed not only remove the craving for the drug but deliver the patient from the pain or neurasthenic miseries to relieve which the drug was first used, and if faithfully employed finally reinstate the patient by removing the morbid effects resulting from the use of the drug.

A fuller account of the Battle Creek Sanitarium Method of treating drug addiction in its various forms will be sent on receipt of the attached coupon.

**The Battle Creek Sanitarium, Battle Creek, Mich.**

Box 350

**The  
SANITARIUM,  
Battle Creek,  
Michigan.**

Please send to the undersigned full information concerning the Battle Creek Method of treating cases of drug addiction.

Dr. ....

Street .....

City .....

State .....

## PUBLISHER'S DEPARTMENT

### OCONOMOWOC SANITARIUM

The small sanitarium, with accommodation for only a few patients, if fully equipped, does a work for some patients that cannot be done by the larger institutions.

The Oconomowoc is such a sanitarium. It is beautifully located in a beautiful city, and it is doing splendid work under the superintendency of Dr. S. B. Ackley.

### REST HOSPITAL

"Rest Hospital" is a home-like sanatorium splendidly located in one of the best residence districts of Minneapolis. It is a thoroughly equipped hospital for nervous patients, and has long enjoyed the patronage of some of the leading physicians of Minneapolis, not a few of its patients often come from other states than Minnesota.

Miss Delia O'Connell, R. N., has had charge of the hospital for many years, and is an unexcelled superintendent. Her rates are moderate.

### SIMS' BREAKFAST FOOD

We presume there are few families who do not use two or more breakfast foods—one for a "steady diet," and one for a change, and then another for an occasional appetizer.

An excellent combination is a wheat product with an oats product. For the former there is nothing more palatable or more healthful than Sims', a wheat product combined with granulated extract of malt, which is gracious to both the appetite and the digestive organs. It is especially desirable for people of sedentary habits, indoor workers, and all invalids.

### THE WAUKESHA HEALTH PRODUCTS COMPANY

The above company calls the attention of our readers to their food products found desirable in the dietary of diabetics. Such products are put up under the trademark of Hepco, and consist of a *starch-poor* flour and grits, a high-grade medicinal olive oil, and saccharin tablets.

It is to be observed that the company very properly and perfectly honestly does not claim to have a *starch-free* flour.

As proper food is the chief treatment of the diabetic patient, this Company's products are worthy of trial.

### SALINOS

Salinos is a palatable, convenient, and inexpensive effervescent saline cathartic, much like certain European bitter waters but more uniform in strength. Its composition is such as is perfectly acceptable to scientific medical men; and though it has been upon the market only a short time, its merits have been recognized, and its use is large.

Many Minneapolis physicians find it a more desirable cathartic than any other ever used by them, and are using it in preference to all others.

Salinos is manufactured by the Salinos Company of Minneapolis. The management, we believe, is beyond criticism or reproach along ethical lines.

### DON'T BLIND THAT SURGICAL EYE

"Lest you forget," the Lincoln Rubber Company, of Akron, Ohio, constantly reminds you, by a forcible illustration heading to its advertising announcement, that the surgeon's eye is in the tip of his finger, and that a poor rubber glove on the finger means a blinded eye. The Company does more than this: it makes for you a rubber glove that is like glasses on "this surgical eye"; and the Company's gloves are also free from other faults that are quite as desirable to avoid.

Their Northwestern agents are Messrs. Noyes Bros. & Cutler, who "see" to it that all gloves sent to Northwestern physicians and surgeons are right in every respect.

### THE MILK PROBLEM

The Minneapolis Milk Company, the largest distributors of milk in the Northwest, are endeavoring, with the co-operation of physicians, to remove, as far as possible, all the handicaps that accompany the distribution of milk, whether from a single cow or a thousand cows. The Company believes that nothing but capital and organization can do this work in an efficient way, and they are striving so to distribute milk that every element of danger may be eliminated, and to do so at reasonable figures.

The medical profession can well afford to accept the Company's offer of co-operation, which calls for suggestion, criticism, and commendation, for all are needed.

### THE VALUE OF GLYCO-THYMOLINE IN TREATING INTESTINAL DISTURBANCES

The condition of the alimentary canal in all diseases of that tract, is one of either congestion or depletion of the villi. Auto-intoxication follows a condition of depletion; and, while this condition is not the direct cause of the "self-poisoning," the restoration to normal conditions would undoubtedly prevent septic absorption. The condition in diarrheal diseases is one of stasis with a great amount of exudation of serum, the villi being greatly distended.

In either case a return to normal conditions is most readily effected by an agent producing an osmotic action: in the one case to deplete and, in the other, to promote the exudation necessary to wash out the intestines and prevent auto-infection. That Glyco-Thymoline will do this effectively has been demonstrated time and time again and many clinical reports from many physicians testify to its great power as a curative agent in all such cases.

### BATTLE CREEK SANITARIUM

In line with its general insistence upon pure foods, the Battle Creek Sanitarium has elaborate arrangements for safe-guarding its milk supply. The milk is produced at a special dairy under very modern, sanitary conditions. It is subjected to rigid microscopic tests daily; and not only the price, but the acceptance of the product, depends upon a very high standard of purity. Certified milk demands a bacteria count not exceeding 10,000 per cubic centimeter—about twenty drops of milk; and the milk supply for the Sanitarium tables is not allowed to exceed the standard set for certified milk, and, as a very general



rule, the bacteria count is so much lower as to authorize the Sanitarium to call its product *super-certified* milk.

The average bacteria count of the Sanitarium milk is about 2,500 per cubic centimeter, and it frequently runs as low as 1,200, and instances have been known when the count was 400,—a count almost unprecedented in the history of dairying.

The value of such a high standard of milk can be very well appreciated by the physicians who have to combat the maladies produced by unclean milk supplies.

#### PREJUDICE GIVES WAY TO KNOWLEDGE

Every doctor is frequently called upon for information regarding many subjects and particularly in regard to the wholesomeness of foods. So much has been written about adulterations, substitutions, misbranding, etc., that people are easily alarmed, and very often intimidated and misled, by the unscrupulous advertiser. Thus some unscrupulous manufacturers have taken advantage of the situation for their own benefit and for their competitors' injury.

Some years ago a great amount of information on the injurious effects of alum in baking powders was supplied by the newspapers. In fact, so general was the alarm that many people were afraid to use baking powder at all. As in a great many other cases, however, the theories upon which the general alarm was based had no foundation in fact. The unnecessary alarm and unnecessary injury to the baking powder interests could have been avoided by ascertaining the facts before the theories were evolved. The question whether alum used in this way is injurious has been settled by the investigation of the Remsen Referee Board of Scientific Experts, appointed by President Roosevelt. This board was composed of the following men: Dr. Ira Ramsen, President of Johns Hopkins University; Dr. Russell H. Chittenden, Professor of Physiological Chemistry, Yale University, and Director of the Sheffield Scientific School; Dr. John H. Long, Professor of Chemistry in the Northwestern University Medical School; Dr. Alonzo E. Taylor, Professor of Physiological Chemistry, University of Pennsylvania; Dr. Theobald Smith, Professor of Comparative Pathology, Harvard University.

The distinguished character and personnel of the Board itself lends additional weight to its findings. The Board made the following findings:

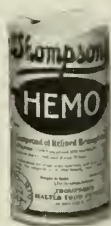
"Aluminum compounds when used in the form of baking powders in foods have not been found to affect injuriously the nutritive value of such foods."

In short, the Board concludes "that alum baking powders are no more harmful than any other baking powders."

In like manner certain baking powder manufacturers have attempted to base a "campaign of fear" and create prejudice against the white of egg, which is used in some baking powders and serves several valuable purposes. On the face of it this is ridiculous because everybody knows that the white of egg, whether in baking powder or anything else, is absolutely pure and wholesome. It permits both the dealer and the housewife to test their powder at all times to determine whether it is of standard strength. It is also used by the salesmen of the companies employing this ingredient to keep the powder fresh on the retailer's shelves, thus protecting not only the retailer, but the housewife, as well, from baking failures.

After a careful investigation we are thoroughly satisfied that both alum and white of egg in baking powder serve valuable purposes, and that baking powder containing these ingredients should be favored and recommended, and that those unscrupulous manufacturers attacking these ingredients for commercial gain alone should not be deemed worthy of the patronage of the members of various medical associations.

The medical profession everywhere is concerned in the welfare of the public, and will welcome the discontinuance of misleading advertisements that have so long attempted to create the belief that so-called alum or white of egg in baking powder is anything but pure and wholesome.



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**T**HE Ideal Electrical Illuminating Outfit for every purpose and use, the most practical and convenient outfit for Physicians and Surgeons where a good light is required and an advantage in making his emergency calls, to examine and treat the Throat, the Nares, Eye, Ear, and many other uses. This complete outfit with all attachments including Tongue Depressor, Ear Speculum and curved and straight metal attachments for the mouth, etc., and regular pen light which carries in the pocket like a fountain pen, also includes three separate light attachments; mailed anywhere in receipt of \$3.50.

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# THE JOURNAL-~~L~~ LANCET

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## THE RELATION OF OCULAR DISEASE TO GENERAL MEDICINE\*

By C. E. SPICER, M. D.

VALLEY CITY, NORTH DAKOTA

Systemic conditions which have a direct bearing on ocular disease, or which cause localized symptoms in the eye and its appendages, are chiefly tuberculosis, syphilis, gonorrhea, leprosy, nephritis, rheumatism, diabetes, leukemia, hysteria, pyemia, impaired metabolism, auto-intoxications, and intestinal parasites.

Tuberculosis seldom occurs as a primary focus in the eye. A lesion in any part of the organ usually means an active or a latent process in some remote part of the body. It may affect the eye as a direct inflammatory condition, and always predisposes it to the more common affections by reason of nutritional disturbances occasioned by the marked lowering of the bodily tone which the disease induces. Tuberculous patients commonly acquire a conjunctivitis, a corneal ulcer, or other evidence of the terminal secondary infections, which accompany the last stages of any wasting disease. On the other hand, a large majority of patients with chronic ocular tuberculosis have never shown any indication of ever being very ill, and it is often difficult to diagnose the primary focus. This is particularly true in a tuberculous iritis or an iridocyclitis; and it has been found in such cases very difficult to demonstrate the bacilli in these lesions, as they are chiefly local reactions to the toxins developed in remote tuberculous foci. A large percentage of conjunctivitis and keratitis eczematosis, lupus of the conjunctiva, sclerosing keratitis, and deep scleritis, have been demonstrated to be tuber-

culous and secondary to systemic foci. Phlyctenulosis is stated by many good authorities to be due to tuberculosis, but the evidence is not conclusive.

The manner of infection of an eye, except in those cases which result from a direct inoculation through an abrasion, probably takes place from the aqueous humor. The bacilli, or their toxins, enter the aqueous humor from the blood in the ciliary processes, where they set up localized lesions, or pass to the cornea and sclera through the filtration angle.

On the basis of treatment tuberculous lesions of the eye are classified into those of the anterior and those of the posterior half of the organ. Those of the anterior half, such as tuberculous keratitis, iritis, or iridocyclitis, respond readily to tuberculin; in those of the posterior half, known as tuberculous retinitis or choroiditis, the influence of tuberculin is doubtful. It is now conceded, however, that its administration in either case does no harm, provided the systemic condition of the patient is in a satisfactory state for the administration of tuberculin. The Calmette test for tuberculosis has been largely replaced by von Pirquet's and Moro's methods owing to the not infrequent resulting conjunctivitis.

Tuberculous choroiditis is always secondary to some systemic focus, and manifests itself in two distinct types: the solitary tubercles and the disseminated or miliary form. As the lesions of the latter disease appear in the choroid before the general systemic infection, the use of the ophthalmoscope is of the greatest diagnostic and prog-

\*Read at the 34th annual meeting of the North Dakota State Medical Association at Bismarck, N. D., May 12 and 13, 1915.

nostic interest in the matter of a differentiation of a general military tuberculosis from a typhoid and the rendering of a prognosis of a rapid and fatal termination of the disease.

The relation of syphilis to the different types of eye disease is quite well known. The primary, or acutely inflamed, lesions are confined to the anterior portion of the eye, while the later lesions affect the posterior segment chiefly. Chronic interstitial keratitis is practically always a manifestation of congenital syphilis. Gummas of the orbital bones may induce an exophthalmus; and a gumma situated in the brain, or along the course of the optic nerve, will cause a papillitis or a choked disk. The primary sore of syphilis may rarely be seen on the lids, conjunctiva, or cornea, as a result of kissing, moistening the adherent lids of infants by syphilitic nurses, or in tonguing the eye to remove foreign bodies. A syphilitic ulcer of the lids is a rare condition and is either a primary sore or a disintegrating gumma. Syphilitic disease of the nose may induce a chronic dacryocystitis, and the lachrymal gland may be the seat of a gummatous lesion.

Congenital syphilis, but more especially the acquired form, is one of the most frequent causes of retinitis, which is usually associated with a similar lesion of the uveal tract.

Many cases of ocular paralyses, especially third-nerve paralysis, are due to lues. The Argyll-Robertson pupil is a well-known characteristic sign of tabes and general paresis. A choroiditis and a primary nerve atrophy can be traced many times to syphilis.

Acquired lues, and less commonly the congenital form, is by far the most frequent cause of iritis, and is most often the accompaniment of the secondary stage. Exceptionally, the iritis may take the later gummatous form. In all cases of obscure iritis the question of syphilis should be strongly considered, and a Wassermann test made.

Gonorrhea of the eye may occur as a primary affection from a direct contact infection, or as a late secondary manifestation of an old latent gleet. We are all familiar with the ravages of gonorrheal ophthalmia in the new-born, and know that we have a perfect prophylactic measure in Crede's method for its prevention during parturition. It is not generally known, however, that children have been born with the disease fully developed, and the cornea already destroyed. We do know that some one has blundered when the eyes of the new-born become infected on the third to the fifth day after par-

turition. We should also know that it is the duty of the medical attendant to safeguard the eyes of every patient with specific urethritis and to extend this protection to the eyes of his associates. Yet, the institutes for the blind continue to be filled with these unfortunates owing to the mistakes of some careless physician, obstetrician, or midwife.

A clinical classification of gonorrheal iritis has been known for a number of years; and, as investigation continues, many of the cases of so-called idiopathic iritis are proven to be due to an old gonorrheal infection when smears are made from a prostatic stripping, or a gonorrheal fixation test is made. Such cases have been known to occur as late as thirty years after the initial infection; and, as diagnostic means are discovered, the clinical term of idiopathic iritis will doubtless be forgotten.

True gonorrheal iritis usually sets in after an outbreak of gonorrheal arthritis in which the knee or some atypical rheumatic joints are involved; but it is well known that there are cases which occur independent of this or other systemic manifestations of gonorrhea, and it is in these cases that the complement-fixation test is of service.

Gonorrheal iritis runs a course much the same as an acute articular rheumatism, so it often resembles outwardly the rheumatic variety. The disease is prone to recurrence with which is often associated a fresh outbreak of the urethral discharge and a return of the swelling of the affected joints.

It is now well known that many of these cases of iritis clear up rapidly on the administration of the gonorrheal bacterins. In fact many ophthalmologists are resorting to this method of treatment in all cases of obscure iritis with negative Wassermann.

Aside from syphilis and gonorrhea the eyes may suffer directly through or reflexly through diseased genital organs. Uterine disease often gives rise to reflex eye-symptoms. A case of glaucoma is reported following the puncture of an ovarian cyst. Cataract, choroiditis, conjunctivitis, and other allied ocular diseases are frequently noted in men with enlarged prostate, and these are known to disappear when the gland has been successfully treated.

It is well known that functional and diseased states of the genital organs in either sex may give rise to neurasthenia or hysteria with their characteristic changes in the pupillary reactions and visual fields. Floating specks before the eyes,



photophobia, blepharospasm, defective accommodation, retinal hyperesthesia are well known accompaniments of sexual neuresthenia.

Obstetrical injuries to the eyes of the new-born are rather frequent with recognizable results after several years. Many cases of ptosis and paralysis of the other extra-ocular muscles, amblyopia, cicatricial ectropion, squint, exophthalmos from an undue compression of the bones of the orbit, or hemorrhage into the orbit, retinal and choroidal hemorrhages, dislocation of the lens and even the entire destruction of an eye may be traced to the unskillful or careless use of the obstetrical forceps.

Exacerbation of an ocular disease often occurs during menstruation, and chronic iritis is subject to relapses during this cyclic period of a woman's life. A peripheral contraction of the field of vision with retinal hyperesthesia occurs during the height of the menstrual flow. A case of recurrent third-nerve paresis during each menstrual period is reported, and one of iritis with hypopyon became suddenly worse at each menstrual date. Amblyopia, which may increase to complete amaurosis, may accompany the menopause, and such changes must not be confused with presbyopia, which is normal at this period. Retinal hemorrhages have been known to follow the suppression of menstruation.

The toxemia of pregnancy has a decided influence on the integrity of the retina; and the examination of the eye-grounds of the pregnant woman may foretell an attack of eclampsia. The induction of an abortion or a premature labor often rests conjointly upon the retinal and the urinary findings.

Pregnancy may be complicated by a severe toxemia without any trace of albumin in the urine. This atypical and obscure form of toxemia manifests itself early in pregnancy; and, aside from pernicious vomiting, the only symptoms may be a failing vision, *muscæ volitantes*, and headaches, which should not be regarded as due to eye-strain. In such cases the estimation of the amount of urea eliminated may be as unreliable as the search for albumin. The renal conditions which arise during pregnancy are usually but an acute exacerbation of an old chronic interstitial nephritis, but the condition of the retinal vessels should put the obstetrician on his guard.

The toxemia of pregnancy may also produce a weakness of accommodation, a contraction of the visual fields, and an excitation of an ex-

ophthalmic goiter with its intricate accompanying ocular symptoms.

The pale optic disc in many multiparæ is but a sequence of a toxic influence of preceding pregnancies.

Septic emboli incident to the puerperal state may lodge in the eye and produce blindness, septic choroiditis, and even panophthalmitis, if the patient resists the pyemic process long enough. Non-septic emboli have produced hemianopsia and even complete blindness. A severe post-partum hemorrhage frequently produces transient blindness, due to the resulting anemia; and severe parturition, especially in a woman with arteriosclerosis, may incite subconjunctival hemorrhages, a hemorrhage in the retina or orbit. A careful account of the blood-pressure in the pregnant woman is fully as important as it is in Bright's disease.

The eye-changes which accompany nephritis are well known to all, but it is frequently left to the oculist to make the diagnosis. The deposition of white patches in the retina may precede the appearance of albumin in the urine in the case of chronic interstitial nephritis, yet in this disease there can be seen early in the retinal vessels the signs of a general arteriosclerosis. In the parenchymatous form the changes in the retina are subsequent to the changes in the kidney.

The retinal changes are due to a transudation, or a leakage from the weakened vessels, and it is a singular fact that there are no small-celled infiltration or other manifestations of inflammation which accompany this. Both the blood serum and the plasma escape from the weakened vessels and the coagulation of the albuminous elements form the white plaques. These are in no way due to the presence of fat.

The radiating arrangement of the cone fibers in the outer nuclear and reticular layers of the retina accounts for the stellate designs which are commonly seen in the macular region in case of albuminuric retinitis. In cases in which the edema is excessive there is associated a retinal detachment, and glaucoma may even complicate the picture. The hemorrhages which often accompany the other changes in the eye-grounds are chiefly capillary and venous, and are but a part of the general picture which takes place in the renal circulation.

The eye-changes which accompany diabetes, appear late in the disease. They are not as characteristic as the changes in albuminuric retinitis, yet may be said to quite well typify the disease.

The changes are chiefly in the arteries and capillaries of the retina. They consist of a fibrohyalin thickening of the intima. Similar changes are found in the systemic vessels, and are due to the circulation of a toxic substance in the blood of all diabetic patients.

Diabetes usually weakens the power of accommodation, and often aggravates or produces a transient myopia or hyperopia. In such cases in which there is a variability in these conditions the urine should be examined for sugar.

As the eye is a special sense-organ, we logically expect its involvement in diseases of the general nervous system. In all conditions of the brain in which there is an increase in the intracranial pressure, as hydrocephalus, abscess, tumors, aneurisms, tuberculous meningitis, there is associated a papillitis, or the choked disk of the older writers.

The early irritative symptoms of meningitis present the well-known symptoms of photophobia, nictitation, and nystagmus, which are replaced later in the disease by paralytic symptoms like conjugate deviation, lagophthalmus, or a neuromyolytic keratitis. A localized process in the region of the third or fourth ventricles may first show a contracted pupil or a strabismus due to an irritation of the nuclei of the nerves which govern these structures. Later there is mydriasis and a paralysis of one or more of the extra-ocular muscles. Insanity is attended by a variability in the pupils, and a post-operative delirium is often induced by the operation of iridectomy or the extraction of a cataract. Tabes shows the Argyll-Robertson pupil and an early diplopia; later it is a well-known cause of primary optic atrophy.

The condition of the pupil is often an important aid in diagnosing an obscure coma. There is mydriasis in all cases with intracranial pressure and contraction; and irregularity attends a cerebral hemorrhage.

Ptosis is an early symptom in 50 per cent of the cases of myasthenia gravis, and occurs as a late symptom in fully 85 per cent of cases. The eye-muscles are involved early in progressive bulbar paralysis, and in isolated paralysis of the orbicularis palpebrarum indicates an involvement of the seventh nerve. A retrobulbar neuritis is often one of the first symptoms noticed in multiple sclerosis; and the first nervous sign of the cerebral form of anterior poliomyelitis may be a convergent squint.

The possibilities of eye-strain and muscular anomalies should be kept in mind as an exciting

cause of vertigo, migraine, epilepsy, chorea, and habit-spasm.

The careful study of the visual fields as a diagnostic aid in the localization of brain lesions has not received the credit which it deserves. Practically all cerebral and many spinal diseases which affect the eye have their characteristic visual fields, among which may be mentioned the contracted field of hysteria, the tubular field of neurasthenia, and the bitemporal hemianopsia characterizing disease of the hypophysis. Much investigation has been recently done both in America and Europe in acromegalia, and it is perhaps of interest to note that the eyes become affected early in this disease owing to the intimate relation which exists between the gland and the optic and motor nerves of the eye. The involvement of the motor nerves is rare, as the pressure affects chiefly the chiasm and the optic nerves proper. Bitemporal hemianopsia has long been recognized a sign which is pathognomonic of acromegalia, but quite recently several cases have been reported which showed a binasal hemianopsia. Other eye-symptoms of this disease quite as important are a diminution of the light sense, exophthalmus, diminution of the blood-current in the retinal vessels, pallor of the optic disk, followed later by pronounced simple atrophy, and a bitemporal, symmetrical paracentral scotoma. The latter symptom is of great diagnostic importance. Many of these cases first consult the oculist owing to the early and distinct involvement of the eye. Many of these cases have come to operation with restoration of vision. Quite recently organotherapy has been tried with some element of success. Its administration depends upon the secondary symptoms; and the particular extract to be administered in any case depends upon whether hyperpituitarism, hypopituitarism, or a polyglandular syndrome is present.

Medical literature at the present time is teeming with articles on systemic infections resulting from pyorrhea, accessory nasal sinus disease, and rhinopharyngitis. Focal infections here have a direct bearing on ocular disease. I have had recently a case of neuroretinitis whose causative factor was an extensive pyorrhea, but it cleared up promptly on the removal of the diseased teeth. Such cases might possibly do well on the hypodermic administration of emetin.

Aside from Rigg's disease there is an intimate connection between the distribution of the superior and inferior dental nerves and the nerves of the eye. It is owing to this anatomic condition

that dental caries provokes reflex ocular pain, much the same as a *tic douloureux* is produced.

An extension of an inflammatory process in a dental root may lead to a maxillary sinusitis, and thence to the orbit with the production of an orbital cellulitis. Dental caries often produces conjunctival irritation, epiphora, keratitis, and phlyctenosis; and not infrequently the same cause excites a chorea of the orbicularis muscle or a blepharospasm. The eruption of the upper canine teeth produces the well-known reflex conjunctival irritation, and an alveolar abscess of this tooth has produced an abscess of the lid on the corresponding side. Among other less common results of dental caries may be mentioned amblyopia, amaurosis, paresis of accommodation, contraction of the field of vision, and dazzling of light upon reading with the appearance of the complementary colors.

The close proximity of the nasal accessory sinuses to the orbit renders ocular complications rather frequent in cases of sinus disease. An orbital cellulitis is not a rare result of a disease of the ethmoids. Sphenoidal sinusitis is a common cause of retrobulbar neuritis; and many cases of optic nerve atrophy may be traced to this condition.

The eye often shares in the metastatic processes from focal infections in the tonsils. I saw in Europe several cases of pseudoglioma, which were traced directly to chronic abscesses of the tonsils.

Adenoids, hypertrophied turbinates, and foreign bodies in the tonsils or in the pharynx, often act on the eye reflexly through the trigeminal nerve, resulting in a diminution in the amplitude of accommodation, blepharospasm, or in conjunctival irritation.

Disorders of the gastro-intestinal tract, like catarrhal gastritis, chronic diarrhea, obstinate constipation, intestinal or gastric hemorrhage, hepatic cirrhosis, and volvulus, often have a decided influence on the functions of the eye; and such abnormalities as amblyopia, amaurosis, early presbyopia, yellowish staining of the conjunctiva, spots before the eyes, weakness of accommodation, can often be relieved only after proper attention to these disorders.

Chronic rhinitis may extend up the lachrymal duct, and be the cause of a persistent conjunctivitis; and a chronic dacryocystitis is very frequently due to nasal disease. Some authors have pointed out a distinct relation between some

forms of rhinitis and choroiditis, but it is likely that syphilis is the underlying cause.

Labial and nasal herpes is often associated with herpes of the cornea; and a complicated corneal affection is likely to accompany herpes zoster.

Subconjunctival hemorrhages are common accompaniments of pertussis, as well as other chronic respiratory affections accompanied by severe cough. Retinal hemorrhages frequently occur in empysema of the lungs.

Exanthemata and the infectious fevers are often the cause of eye-disease. Cerebrospinal meningitis affects the eye largely through the irritation of the nuclei of the cranial nerves supplying the eye-structures. Diphtheria may affect the eye as a local disease; but most often it gives rise to a paralysis of accommodation or to a paresis of one or more of the extra-ocular muscles. Measles is always accompanied by conjunctival irritation, photophobia, and lachrymation; and there may be left a chronic blepharitis as a sequela. Corneal ulcers are not infrequent sequelæ of scarlet fever, and a post-scarlatinal nephritis gives the picture of albuminuric retinitis. Erysipelas of the face involves the lids and conjunctiva with frequent corneal ulcers. In tetanus and hydrophobia the eye-muscles are affected early. Smallpox is frequently complicated by keratitis and iritis, and not rarely has caused the destruction of an eye. Vaccina of the lids may occur in vaccination, both from contact infection and auto-inoculation. It also occurs as a primary affection among milkers.

Auto-intoxication, or the poisoning of an organism by its own metabolism, has been found to hold etiologic relations to a number of diseased processes of the eye. Among the eye-diseases most related to this cause may be included retrobulbar neuritis, toxic amblyopia, paresis of the extra-ocular muscles and muscles of accommodation, relapsing marginal ulceration of the cornea, periodic fugacious episcleritis, uveitis with punctate keratitis, and relapsing iritis, and iridocyclitis. There is a form of chronic iridocyclitis, with deposits in the anterior chamber and opacities in the vitreus, which is particularly prone to occur in old women who are obstinately constipated. There is an acetone-like odor to their breath, and the urine when examined is found loaded with indican. These cases do exceptionally well when medication is directed towards the gastro-intestinal tract.

There are cases of post-operative delirium and post-operative cyclitis which can be accounted for



by auto-intoxication. Many cases of plastic choroiditis may be traced to the same cause, and many a case of stubborn blepharitis can be cleared up only by proper attention to the gastrointestinal tract. The administration of calomel and guaiacol carbonate seems to meet the indications for treatment in these cases, and in others traced to auto-intoxication.

A case of albuminuric retinitis, with negative urinary findings, normal blood-pressure, good family history, and negative physical examination, in a man 37 years of age, a coppersmith, was reported in the last issue of the *Ophthalmic Record*. The etiologic factor in this case was traced to a toxemia from the lower bowel, which responded promptly to medication addressed to this condition.

The intestinal parasites, which are responsible for disturbances in the eye, are chiefly trichiniasis, tenia solium, ascaris lumbricoides, oxyuris vermicularis, and uncinariasis, or hook-worm disease. The disturbances due to these diseases are chiefly reflex, but the resulting anemia, the toxins developed by the parasites, and the pain in the eye from the presence of the parasite in the tissues, account for the direct symptoms. Should the embryos of any of these parasites enter the general circulation there is a possibility of their localizing in the eye, with consequent destruction of the organ. There are a few of such cases reported in the literature.

Jarvey, of South Carolina, reports in the *Journal of the A. M. A.* on the relation of hook-worm disease to the eye in fifty-three cases, with a re-

view of the literature. He regards the eye-symptoms as incidental to a general systemic condition, to the resulting anemia, and to the pathologic findings.

Pediculi may attack the margin of the lids, and induce a most persistent blepharitis. Some oculists in Europe have drawn a causal relation between pediculus capitis and phlyctenosis, and regard the destruction of the parasites with their ova as essential before the latter disease can be eradicated.

Both the tubercular and anesthetic form of leprosy may involve the lids with loss of the eyebrows and the cilia. It affects the conjunctiva and the sclera in the form of leprous tuberculomata, which are very prone to attack the sclerocorneal margin, and be taken for new growths. In the cornea proper there is a diffuse or a deep infiltrating keratitis. There also occurs a punctate form of keratitis, the lesions being clumps of the bacilli surrounded by an inflammatory reaction. Rarely, there may occur leprous nodules in the iris and the ciliary body, but the bacilli never attack the structures back of the equator. These lesions of the eye are secondary to those in other parts of the body, yet several cases of primary leprosy of the eye have been reported. The nodules finally break down with the destruction of the eye, although the lesions of the cornea have been known to heal with extensive leukoma. Radium has recently been used in leprous lesions of the eye; and I saw several cases treated in Europe with marked success.

## CONGENITAL FRACTURE OF THE CLAVICLE, WITH OTHER FAULTY BONY CONFORMATIONS\*

By S. M. JOHNS, M. D.

VELVA, NORTH DAKOTA

Four cases of congenital fracture of the clavicle, with other bony disturbances occurring in brothers, and coming to one's attention at the same time, should be considered of greater significance than similar cases appearing at different times and in different families. It suggests to the observer that this phenomenon must be a result of some pre-existing pathological influence, and should be positively determined by investigation.

The family history of one of the four brothers

applies to the others. They are Americans. Their ages are, respectively, 24, 17, 14, and 12 years. The parents are living and in good health. There is another brother, twenty-two years of age, and one sister fifteen years of age, each in good health. No children of these parents are dead. The parents are farmers. These sons were reared on a farm, and now reside with their parents. One aunt, thirty-five years of age, is rachitic, the disease being of congenital origin and in a most severe form. With this exception, no other rachitic tendency is known among the relatives.

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These fractured clavicles, with other bony defects as presented in each patient, and a family history showing rachitis, command the association of rachitis as a pathological factor. Syphilis, being regarded by some as of etiological importance in congenital fractures, may be excluded in these cases, as neither the family history nor a Wassermann reaction gives any positive indication that syphilis is responsible for these fractures. Tuberculosis and alcoholism have no positive hereditary bearing upon these cases, as the parents are living and have been healthy and temperate throughout their lives.

A diagnosis of congenital fracture is substantiated by reason of these rachitic manifestations, as all bones are more susceptible to fracture when

family. He stated that this case was of congenital origin.

Other causes that may produce congenital fracture of the clavicle are the following: intra-uterine muscular contractions of the fetus during convulsive attacks; strong uterine contractions during labor while the child is passing through the cavity of the pelvis; or it may occur during the operation of version and extraction of the child. Normal labor occurred in these four cases. The point of fracture in these four cases is at the junction of the outer with the middle third of the clavicle, which is the most frequent location for fracture in this bone.

On inspection there will be found the usual symptoms of a simple fracture of the clavicle.—mobility of fragments, deformity, and occasional crepitus. Pseudo-arthritis may have devel-



Fig. 1. Slight prominence of the right clavicle; drooping of the right shoulder; and "pigeon breast."



Fig. 2. Overlapping fragments of the right clavicle. Pronounced prominence of the interior angle of the left scapula and lordosis.

in a state of impoverished nutrition. The absence of a traumatic history in all four cases also warrants us in concluding that these fractures are of congenital origin. None of these brothers had any knowledge of the existence of fractures. They had not experienced any inconvenience or pain from them, except the oldest brother, who suffered slight pain in his shoulder when performing labor which exerted the shoulder muscles. I discovered a fracture in the brother twelve years of age, while examining him for another ailment. The mother, who was present at this examination, knew nothing of this condition until then. Velpeau related a similar case of a patient thirty-five years old, who had fractures of both clavicles without union or much overlapping, and unknown to both patient and

opened, in which a bursa forms between the ends of the fragments, and a flail-like joint is produced. A dense fibrous tissue may develop between the ends of the fragments, and render them less mobile upon each other, yet permitting of angular motion at the seat of the fracture. Where fibrous development takes place crepitus is absent.

Deformity in these fractures is proportionate to the displacement and overlapping of the fragments, reducing the clavicular space, and causing the inward and forward rotation and the dropping of the shoulder upon the thoracic wall, also tilting the scapula forward upon the trunk, and causing its internal border and inferior angle to become excessively prominent.

Each of these cases shows dystrophic conformation of other bones, more commonly of the cran-

ium and thorax. In each case the frontal bones are prominent. In one there is a flattened occiput. The ribs in two are of irregular curve, producing the barrel-shaped chest. The sternum in one shows imperfect development. There was irregular dentition in one, lordosis in one, and talipes varus in another.

The prognosis in this fracture is unfavorable from the viewpoint of complete restoration of function and form; although an occasional spontaneous union may improve the function to a slight degree, but does not correct the deformity of the shoulder. Favorable results are obtained only from operative treatment. No



Fig. 3. Left clavicle united with fragments overlapping, shortening the left clavicular space. Right clavicle undeveloped; fragments not approximating. Irregular costal development, with resulting chest-deformity.

method of treatment, except that indicated in an acquired fracture with a fibrous union, should be attempted; and that is purely operative treatment, and its technic is quite the same. The clavicles in the two older brothers are of sufficient strength to warrant a strong union if repaired by the operative method.

Assuming that these bony defects so characteristic in these young men, are allied to, and are the results of, rickets, a medicinal treatment may prove beneficial, if directed towards improving the condition of rickets, viz., the calcium salts and phosphorus, which are considered superior to other remedies. Cod liver oil is highly commended. Dietetics is also valuable, selecting those foods which supply the bony tissues with the proper nourishment. Most important among this class of foods are the yolk of

eggs, milk, cereals, fresh meats, and vegetables. All these foods are to be used to a point of toleration without producing digestive disturbance. These young men, however, have passed the period of development in which either medicinal or dietetic treatment would be of value, except possibly the youngest brother, in whom the fractured clavicle seems to be undeveloped.

Of the eight clavicles of these four brothers showing either ununited fractures or calluses of all these bones, combined with a history of rickets and absence of any traumatic history, rickets must be given recognition as being the dominant factor in producing these fractures, and this warrants us in concluding that they are also of congenital origin.

#### THE FOUR CASES

CASE 1.—Mathew C., aged 24 (Fig. 1), fracture of right clavicle at junction of external with middle third. Fragments of bone overlap. The external fragment is pushed deeply posteriorly and inferiorly to its normal position, and is connected by fibrous union to the internal fragment, producing a flail-like joint. The right shoulder is lower than the left. The left clavicle presents callus at the junction external with the middle third, with some overlapping and consequent shortening of the clavicle and deformity of the shoulder.

Rachitic symptoms: frontal prominence slightly exaggerated; sternum irregular in development, the right side being more prominent than left; tendency to pigeon-breast; some prominence of tuberosity of the occiput.

CASE 2.—Thomas C., aged 17. Fracture of right and left clavicles at junction of external and middle thirds. The inner fragments lie anteriorly and superiorly to the outer fragments, overlapping each other about 2 cm., and movable upon each other; crepitus, absent; and the usual fibrous development is found. Shoulder-deformity is symmetrical, owing to equal amount of overlapping of both bones. Rachitic symptoms: enlarged frontal prominence.

CASE 3.—Willie C., aged 14 (Fig. 2), shows fracture of right clavicle at junction of external with middle third. The inner fragment is anterior to external fragment, and overlapping is quite extensive, causing pronounced deformity of the right shoulder. The left clavicle shows callus with firm union, the fragments, however, uniting on an angle and overlapping, which renders a permanent deformity and impairment of function of the left shoulder.

Rachitic symptoms: frontal prominence decidedly enlarged and thickened; lordosis to slight degree; prominent abdomen; ribs are small with thickened ends.

CASE 4.—Francis C., aged 12 (Fig. 3), fracture of right clavicle at junction of external with middle third. Inner fragment lies anteriorly and superiorly to the outer fragment, though not approximating, as a result of underdevelopment. The left clavicle presents callus at the same point as the fracture of the right clavicle.

Rachitic symptoms: irregular dentition, talipes varus, thickening of frontal bones and barrel-shaped chest.



## PATHOLOGICAL LABORATORIES OF GREAT BRITAIN

By H. E. ROBERTSON, A. B., M. D.  
 Professor of Pathology, University of Minnesota  
 MINNEAPOLIS

Not having seen a laboratory for more than ten days, it seemed most natural, my first morning in Glasgow, to turn my steps toward the University. Armed with letters of introduction, I routed out a porter, and by him was conducted to the office of Dr. Ralph Stockman, Professor of Pharmacology, under whose genial guidance I was shown through the medical school. Dr. Stockman's laboratory was beautifully equipped, but his work, like much of the research in England and Scotland, was being accomplished under a private grant.

The Western Infirmary, an integral part of the University, houses the department of pathology, of which Dr. Robert Muir, affectionately known to his students as "Bobby" Muir, is the head. He has organized one of the few ideal pathological departments in the British Isles. His duties, however, are not confined to the department alone. He is pathologist to the Infirmary, a huge institution of six hundred beds, where, besides having charge of the autopsies (nearly three hundred a year), he also exercises a theoretical supervision over the clinical laboratory of the hospital. For several years Professor Muir has been mainly interested in serological problems, his assistants confining their attention to the field of morphological pathology. Dr. Dunn, his first assistant, was working at that time on a case of ganglioneuroma. Dr. Brown, who had charge of the clinical laboratory of the hospital, and who, since the time of my visit, has accepted a similar position at the Middlesex Hospital of London, was experimenting with a culture-medium which contained varying quantities of tellurium and which was supposed to be selective for diphtheria and typhoid bacilli. Subsequently, both of these men presented the results of their work at the Cambridge meeting of the British Pathological Society.

The arrangement for hospital teaching at the University was unique. The Western Infirmary is used exclusively for teaching the male medical students, while the women students receive their instruction at the Royal Infirmary. In this latter hospital the pathologist is Professor Teacher, the describer of "Teacher's ovum." He has a very complete hospital laboratory; and no expense has been spared in ventilating, lighting, and equipping the rooms. His autopsies reach

about the same number as those of the Western Infirmary, and in both hospitals the pathological museums are large and interesting.

In anticipation of the visit of their majesties, King George and Queen Mary, Dr. Teacher had been given charge of the restoration of the original ward used by Lister while making his famous experiments in combating infections with antiseptics. The ward was in one of the older wings of the Infirmary, and was being restored as nearly as possible to its condition during Lister's reign. An old nurse who had served under Lister, had been found; and during the royal visit she was once more to be "on duty." It was sincerely hoped that this small bit out of the past, surrounded as it was by the modern improvements of the present, would attract the attention of the king and queen, and thus place on a solid foundation the movement for the final preservation of the ward as an historical medical museum.

While Glasgow, as a whole, could not be described as a beautiful or attractive city in which the casual tourist would care to linger; nevertheless, for me its pathological divisions held great interest. With two large hospitals, both possessing laboratories as complete and well arranged as any in Europe, Glasgow has one of the few medical schools where the professor of pathology has direct charge of the pathological department and of the laboratories of the associated hospitals, without which no really effective teaching in pathology can be accomplished.

To the tourist, Edinburgh is a veritable treat. There, seek what he may, he can find enough to engage his interest. Here the space will not permit that I dilate upon its general historical background, upon its natural beauties, or upon the charming hospitality of its people. Enough to say that there is an overabundance of all three characteristics.

History underlies even its medical development, and for over two hundred years Edinburgh has held a foremost place in medicine and surgery. It was from the old medical school that the University of Pennsylvania School of Medicine took its birth; and through that institution the Scottish ideals have penetrated to some extent to every medical school in the United States. In 1831 the first pathological teaching

in the British Empire was organized in the University of Edinburgh; and since then its humble beginning has advanced with hugh strides until today the head of the department is usually regarded as the chief man in Great Britain in this branch of medical education.

A few years ago Professor Lorraine Smith, known as the originator of the Nile-blue stain for fats, was called to this position from the University of Manchester. Although Professor Smith has not direct supervision of the pathological laboratory of the Royal Infirmary, he has established very close working-relations with it. The Infirmary is a splendid institution, having nine hundred beds, and furnishes about four hundred post-mortems yearly. It is located next door to the medical school, and the students have free entry to its wards. Professor Shennon is in charge of its pathological department; and, working as he does in harmony with Professor Smith, the University does not suffer for want of specimens, nor the students for lack of experience in autopsy work, which subject is under the direction of Dr. Shennon. Such a dual arrangement is not ideal, but at the present it is the best that offers.

Situated at a short distance from the medical school, I found Professor James Ritchie in charge of an experimental research laboratory, which has no connection with the University, but is supported by the Royal College of Surgeons. A movement has been started that may result in uniting the University with these two institutions, and also in providing a new building which will house the departments of pathology and bacteriology and also the research laboratory, all of these, of course, to be a part of the University.

Dr. Ritchie was enthusiastic about a very interesting piece of research that had practically been completed. Thinking that the very prevalent tuberculosis in children might be traced to the milk supply, a theory not generally supported by the medical profession in Scotland, his assistant had examined samples from the various private milk-depots of Edinburgh, and in twenty per cent of the samples had found tubercle bacilli. The presence of this organism was tested by means of guinea-pig inoculations of centrifugalized sediment, cultures, and stained preparations. At the same time a comparison of the characteristics with those isolated from tuberculous lymph-nodes of children, was made, and showed that the type of the two organisms corresponded very closely in all essentials. Such

results emphasized that the prevalence of tuberculosis in children might have a very close connection with the infected milk.

About one mile from the medical school is the Board of Health laboratory. It occupies a fine building and is well equipped, but needs closer relations with the University, the only connection now being through the director, Dr. Hunter Stewart, who lectures to the medical students on hygiene. Efforts to promote public-health matters in Great Britain, and to obtain closely correlated teaching in public health, are hampered by the establishment of too many independent units and the lack of a close working-relation of the various interests involved.

In Aberdeen, in 1860, Marischal and King's Colleges were incorporated to form the University of Aberdeen. The two institutions are at some distance from each other. The buildings and surrounding grounds of King's are older and more beautiful than those of Marischal, which perhaps suffers because of its central location. It is in one of the older buildings of Marischal, into two or three small semibase-ment rooms, that the department of pathology is crowded. It was without a head at the time of my visit, and the routine work was being carried on by the younger men under very discouraging conditions. And yet one felt that, given time, the department would maintain its historical reputation, shared with the rest of the University, and would find its way out of the wilderness.

Between Aberdeen and London, in medical matters as in everything else, was a very great contrast. It was impossible to exhaust the vastness of London's medical resources in a short visit, and hence I was obliged to confine my activities very closely to some of the larger hospitals and research laboratories. Realizing that even these would tax my time to the utmost, without delay I called upon Dr. Lazarus Barlow, who has charge of the Cancer Research Laboratory of the Middlesex Hospital. Except for certain wards which are used solely for cancer patients, the laboratory is independent of the hospital. The arrangement is ideal, and is significant of the marked changes toward scientific research which are permeating the entire medical world. Dr. Barlow was then studying the effects of radium on normal tissue, and was especially interested in the increase of mitotic figures found in the epithelial cells of rats exposed to definite amounts of radium emanations. He leans toward the theory that radium in some way may be responsible for the development of

human cancer. His first assistant, Dr. Beeten, was working on the disappearance of Altmann's granules in the cells of malignant tumors as a possible distinguishing feature between cancer and allied inflammatory new-growths. The clinicopathological laboratory of the hospital had been lately reorganized and was to be under the charge of Dr. Browning of Glasgow.

Naturally, being much interested in all cancer work, I did not fail to visit the Imperial Institute for Cancer Research, one of the pioneer institutions of its kind in the world. Dr. Bashford was in charge, and acted as guide during a trip through the laboratories. With a capacity for caring for 50,000 laboratory animals, they had then 20,000, the majority being white mice, which were bred in the laboratory from generation to generation. Each mouse's pedigree and history was as accurately recorded as that of a registered horse. Both spontaneous and inoculation tumors were studied from all possible angles. Generally, these tumors in animals were found to correspond in histological and biological characteristics with those in the human race. However, Dr. Bashford was not willing to commit himself to any particular theory concerning the cause of cancer; but, by using the results of the work done in his laboratory, he felt able to criticise successfully any existing theory. An energetic speaker and writer, as well as worker, he is well armed with efficient weapons, and one must be thoroughly sure of himself who would defend against such an opponent any hypothesis concerning malignant tumors. His chief assistant, Dr. Murray, is deeply interested in the histological aspect of tumors; and in his collection are many strange tissue freaks. At that time he was studying a peculiar liposarcoma and also the features of Rous's chicken sarcoma. The simple cages of wood, housing such an enormous number of animals, the thoroughly trained corps of dieners, and the scientific spirit of the whole staff, stimulated one's imagination as to the many possibilities of the cancer problem which could be investigated in such a laboratory. Surely, if the "tumor riddle" is ever to be solved, Dr. Bashford and his large staff with every facility at hand to aid in the investigation ought to be well in the front ranks.

It was only the remembrance of the Rockefeller Institute in this country which prevented my being envious of the Lister Institute in London. Beautifully located on the banks of the Thames, well out of the crowded part of the city, it is a large four-story building, one of the nu-

merous memorials in Great Britain to the famous Lord Lister. The Institute is richly endowed, and its laboratories are crowded with a staff of thoroughly trained workers under the direction of Dr. Martin. In particular I remember Dr. Ledingham, head of the bacteriological division, who had recently returned from Aschoff's laboratory in Freiburg, where he had worked on the experimental production of purpura hemorrhagica by the injection of blood platelets. Dr. Arkwright was busy with the study of the reactions of bacteria to electrical currents; and Miss Chick, with the chemical nature of anti-toxin. Her paper on this subject before the British Pathological Society received very favorable comment.

While at the Institute, I met Sir David and Lady Bruce, who had recently returned from a long sojourn in Africa, where Sir David had studied the distribution of the various forms of trypanosomiasis and their carriers. He was engaged with the preparation of an official report of the work, and Lady Bruce was assisting in the compilation, her interest in the work itself and their life in Africa being the equal of his.

Unfortunately, these three institutes have no direct connection with any university, and are not used in any way for teaching purposes. While the Middlesex Hospital has a medical school, this latter is quite separate from the Middlesex Cancer Institute. Only trained graduate workers are on the various staffs of these research laboratories. While a University man regrets the lost teaching possibilities, he must admit that the independence of these large important institutions marks a development and an important forward step in British scientific medicine.

Before leaving the subject of independent institutions, I must mention the Royal College of Surgeons at Lincoln's Inn Fields, which was erected in 1835. John Hunter, the famous surgeon, possessed a superb collection of anatomical specimens for which, at his death, in 1793, the government paid \$60,000, thus forming the nucleus of the anatomical and pathological museums of the Royal College. Since that time the collection has been augmented until today it occupies five large rooms, and is one of the largest in the world. With Professor Shattuck as director, there is a staff of trained workers constantly employed in mounting, arranging, and cataloguing the various specimens which come to them from every part of the world. The ethnological and comparative anatomy collections



are worthy of more than casual mention. However, the wing holding the pathological material, especially designed for the use of students, attracted me more strongly. In here were various, more or less complete series of tissues, beautifully mounted, which illustrated the common lesions studied in pathology, and which were minutely described in convenient catalogues. Here, again, there is no close association between this institution and any medical school, so that, aside from entertaining occasional visitors and being useful to a few research workers, it serves chiefly to preserve, permanently, valuable sets of specimens, and to furnish material for medical students who may wish to cram for their final examinations.

The hospitals in London are more closely allied with medical education than are the more scientific institutes. Without visits to the former, neither the history nor the present status of undergraduate medical work in England can be understood. In most of the large hospitals are established medical schools which represent the results of efforts begun in the seventeenth century to break away from the hide-bound ecclesiasticism of medieval universities. The success of the plan is open to grave question, especially as these hospital schools have lagged behind the latter institutions in the development of the fundamental sciences. Consequently, in only a few has the teaching of pathology been placed upon a firm basis with properly equipped and well-supported laboratories for instruction and research. In those few with the decided advantages of having the hospital and school so closely united, a condition that is more necessary today than a century ago, the future is full of promise.

In the London Hospital, which has accommodations for one thousand bed-patients and an army of out-patients, I was entertained by Dr. Turnbull, who was in charge of the pathological laboratory. With one trained assistant and two student assistants, he attempts to carry with his teaching the routine necessary for a yearly average of from nine hundred to twelve hundred autopsies and three thousand surgical specimens. A very elaborate system of records, crowded quarters, and an equipment of which much was out of date, retarded his efforts. Although he possessed a fine German training and a desire to do productive work, he was literally swamped by the routine. The pathological museum is still under the care of the surgeons, as in the olden time, and its expensive and elaborate collection of specimens is fragmentary and of little prac-

tical teaching value. The bacteriological and serum laboratory is an independent unit, and is under the direction of Dr. Bullock.

While at the hospital I visited Dr. Parkenson, formerly Dr. Turnbull's assistant in the laboratory. Using the experience gained in the autopsy room as the foundation of his clinical training, after studying with Einthoven, he became first assistant to Dr. Mackenzie, who has organized what is probably one of the best-equipped and best-managed clinics in Europe for the systematic study of heart cases. Dr. Parkenson was very enthusiastic over the results of his studies then being made on auricular fibrillation and auricular fluttering. With the electrocardiograph these irregularities were easily detected, and he believed that many an obscure and perplexing syndrome could thus be explained. As I was leaving the clinic, Dr. Mackenzie came in, and he had no trouble to persuade me to remain and to examine his system of records. One case had been followed longer than three years, and in the graphic tracings the patient's "heart-history" could be plainly read. The solid character of the work being done here could not fail to impress one favorably, much more so than the hospital wards, which, although large and long, were old and overcrowded. New and modern buildings are badly needed.

St. Bartholomew's Hospital, commonly called "Bart's," traces its history back to 1123. It was here that Harvey, Abernethy, and Richard Owen, the anatomist, taught. Besides being the oldest, it is also the richest, institution of its kind in London. Here I found Professor Andrewes in charge of the pathological laboratory and teaching. With an average of six hundred post-mortems each year, the routine work was fairly well organized; but lack of modern workers and equipment handicapped productiveness. In the school as a whole the clinical branches still receive a one-sided emphasis, which is strikingly illustrated by the museum, which has been furnished by the surgeons who have under their supervision some 7,000 specimens, few of which could be readily used for teaching pathology.

Around Guy's Hospital, founded in 1721 by Thomas Guy, who was described by one historian as "the miserly bookseller," is, nevertheless, a radiant historical halo. Before the entrance of the hospital a prominent statue commemorates the good deeds of the founder; and, within, six hundred beds carry on the work he began. In 1913 the new medical buildings of the hospital were opened, and these are excellently arranged

and equipped. Dr. Eyre, head of bacteriology, was out of town, but Dr. Laidlow, in charge of pathology, and Dr. Clark, who was working in pharmacology, were easily found. Both of these men had their laboratories in the same building, where there seemed to be plenty of space and apparatus. The autopsies numbered about six hundred a year; and the pathological museum is a treasure-house of eight thousand beautifully mounted specimens. There was little evidence of organized or original work, however, and my most pleasant and most vivid memory of Guy's is my meeting by chance with an American doctor from St. Louis, who was also "traveling around," and whose vigorous handshake and distinctly American conversation made me glad that I had chosen that particular time for my visit. Yès, that afternoon was certainly well spent, even if it did not contain any marked inspiration from the standpoint of pathology.

By taking a train to Denmark Hill, a suburb of London, one can reach, by walking a few blocks, the new King's College Hospital, associated with King's College, a part of London University. Here the acme of modern hospital-construction in England has been attained. At that time the hospital was only partially finished, and was using about two hundred and fifty of the ultimate six hundred beds for which it would have accommodation. Its situation on high ground, facing Ruskin Park, with plenty of light and fresh air, was a welcome change from the squalid surroundings and gloomy old buildings of most London hospitals. The open-ward system, first used in Guy's, has been utilized here, each ward holding about thirty beds. In connection with each ward were detention-rooms, diet-kitchens, sun-porches, and, what was more noteworthy, a special laboratory for routine clinical examinations. In the center of the ward was a huge fireplace, and again I was forced to compare the comfort of the patients in this new building with those in the over-crowded wards of the older institutions.

The laboratories were as completely equipped with modern improvements as the hospital itself. Professor d'Este Emery is in charge of the laboratory, and also teaches pathology. His first assistant, Dr. Ridges, is a well-trained man, and on the alert for everything new in the pathological field. Besides carrying on the usual routine, there was an attempt at productiveness.

From London two very enjoyable side-trips were made, one to Cambridge, the other to Oxford. Professor Lorraine Smith, of Edinburgh,

had invited me to be his guest at the meeting of the British Pathological Society, which, in 1914, was held in Cambridge. About forty members of the society were present; and it was pleasant to meet again the various men whom I had visited in their laboratories. Their cordial greetings made me feel as much "at home" as at a similar gathering in this country. Professor Simms Woodhead presided over the meetings, and the papers presented were interesting and the discussions lively. I have already mentioned some of the subjects. Another paper I remember was read by Dr. Graham-Smith, in which he drew parallels between the trio,—hot weather, days of sunshine, and fly-development, on the one hand,—and the reported deaths from summer diarrhea, on the other. After Dr. Dunn had reported his case of ganglioneuroma, some colored lantern-slides of a similar tumor from a case of Dr. A. A. Laws, of Minneapolis, which I had taken abroad with me, and which I had been asked to show, were accepted for discussion.

After listening to the many scientific reports, it was pleasant to gather less formally in a social way where opportunities for talks with the various men were plentiful. It was during such an interval that I met Professor Clifford Allbutt, whose prominence in clinical medicine in England is as high as that of Sir William Osler in America. A luncheon at Caius (Keys) College was followed later in the day by tea in the pathological laboratory, and in the evening by a banquet, also at Caius. During the dinner good toasts were given by Dr. McWheeney, professor of pathology at Dublin, by Professor James Ritchie, of Edinburgh, and by Sir David Bruce. However, for me these were utterly ruined by the earlier announcement that every visitor must sing a song, tell a good story, or make a speech. This dilemma with three horns was met by presenting to the British Pathological Society the compliments and best wishes of the Minnesota Pathological Society and the American Society of Pathologists and Bacteriologists.

Between meetings and meals I employed the time by inspecting the various colleges, and also by calling upon Dr. Hardy, professor of physiology in Cambridge, who, in former years, had been a schoolmate of Professor Westbrook, my former chief at Minnesota, to whose kindness I owed many of my letters of introduction, which, wherever I went, proved open doors to generous welcome and marked courtesies.

Of all the schools visited, before or since, no more beautiful nor more ideal than Cambridge

has been seen. Oxford possesses a similar historical background, similar "quads," gardens, and walks. Similar tablets and old chapels emphasize famous alumni in both universities, but to me Cambridge will ever hold first place.

Perhaps it was the extremely hot weather, perhaps the absence of the pathological society with its genial company, perhaps my digestion, but, whatever the reason, my visit to Oxford the following week was a slight disappointment as far as the University itself was concerned. However, the medical school compensated in some degree. Sir William Osler is at Oxford, and this is an important attraction for Americans. The same traits, the cordial handshake and pat on the shoulder, the hearty interest in one's visit, the desire to be useful in any way possible, showed that the personality which had endeared him to Montreal, Pennsylvania, Hopkins, and hundreds of other students, although transplanted, yet remained unchanged. Under Sir William medicine has progressed markedly at Oxford. Radcliffe Infirmary, a beautiful hospital of one hundred and fifty-six beds, has been built. In the laboratory, tables of teakwood excited my envy until I thought of explaining such an extravagance to a state legislature. Dr. Gibson, pathologist to the hospital, was not there, but at the University I found Dr. Dreyer, professor of pathology, and his assistant, Dr. Ainley Walker.

The story of Dr. Dreyer's appointment may be apocryphal, and is pure hearsay, but it is rather interesting. Oxford wanted a promising pathologist with a good German training, but even at that time Germans were personæ non gratae,

and when Dr. Dreyer, a Dane, was discovered working in Professor Madsen's laboratory in Copenhagen, the requirements seemed to be fulfilled. He has received his pathological training in Germany, France, and Denmark; and he is considered an energetic, talented worker and teacher. His laboratory is a perfect beehive of research, especially along serological lines in which biological chemistry and mathematics play a prominent part. The physiological leanings of British pathology were also illustrated by an experiment then being made in which a cat deprived of all its basal ganglia by operation was still alive after the seventh day. A continuous warm-water bath kept up the body temperature, while feeding and other physical processes could apparently be continued indefinitely.

Altogether, my impressions of British laboratories and their futures were decidedly favorable. Pathology and its related branches are in safe hands. With a wonderful amount of material, the increasing support which the laboratories are receiving, and the real enthusiasm for good scientific work among the English, one could hardly fail to find opportunities for doing independent research in any one of the laboratories which I visited. Unfortunately, the time at my disposal was not sufficient to include all of the laboratories in the kingdom, but at Cambridge I met many of the men who represented the more distant schools; and, from talking with them, I venture to predict that those who have the necessary time and inclination can find as interesting work in these places as I found in those I have here described.

## THE ESOPHAGOSCOPE IN THE DIAGNOSIS OF DISEASES OF THE GULLET

BY WILHELM LERCHE, M. D.

ST. PAUL

To anyone who has become familiar with the use of the esophagoscope, it must be apparent that positive diagnosis of esophageal disorders can be made only by the aid of that instrument.

Percussion, auscultation, and palpation are of negligible value in the examination of the gullet. Röntgenoscopy is a valuable adjunct, but its usefulness is quite limited; and the same must be said about the esophageal sound. Except for determining the presence or absence of an obstruction, and for the estimation of the caliber of a stricture, the sound is of little use.

By the aid of a properly constructed esophagoscope, however, the situation at once becomes changed, so that, instead of the gullet being an organ most difficult of approach, it has become the most accessible, barring none, as far as diagnosis is concerned, and also in regard to the treatment of certain affections of the organ. It has been my experience, with a relatively good-sized material studied esophagoscopically (I have used as a basis for this paper 150 cases), that positive diagnosis of affections of the gullet during life can be made only by the aid of the



esophagoscope. It does not make any difference how many cases one may have seen, if they have not been examined with the esophagoscope, so many mistakes in diagnosis will necessarily be made that such cases when reported have little scientific value, because conclusions cannot be drawn from them, except that their number indicates the frequent occurrence of esophageal disorders.

All affections of the esophagus have the same main symptom in common, namely, "the disturbance of deglutition," and most other symptoms are relative to or expressions of this; hence the difficulty of differential diagnosis, unless the esophagoscope is used in the examination.

Diverticula of the upper end of the gullet, certain foreign bodies, etc., may, of course, be demonstrated by röntgenoscopy, but such cases should also be examined esophagoscopically for reasons that will be discussed under their respective headings. Likewise, cancer of the gullet may unquestionably be guessed, and at times correctly, from the history of the case and the findings with the sound when a man of advanced years cannot swallow his food and is cachectic. However, the object should be to make a diagnosis before the patient gets to that stage, and that can be made only esophagoscopically.

The accompanying table shows the variety of affections of the gullet represented in the material that has come under my observation:

Neuroses	Sensory	{ Hyperesthesia and Paresthesia	{ Primary or idiopathic
			{ Secondary
	Motor	Esophagospasm	{ Primary (idiopathic)
			{ Secondary
		Cardiospasm	{ Primary (idiopathic)
			{ Secondary
	Atony of the esophagus		
	Insufficiency of the cardia		
Cicatricial strictures	{ a. from corrosives		
	{ b. following scarlatina		
	{ c. deep-seated strictures of unknown origin		
	{ d. membranous of strictures unknown origin		
New growth	{ Sarcoma		
	{ Carcinoma		
Stenosis from compression	{ Goiter		
	{ New growth		
	{ Mediastinal lymph-nodes		
	{ Periesophageal abscess		
Esophagitis acuta			
Esophagitis chronica			
Esophagitis exfoliativa			
Ulcus esophagi pepticum			
Ulcer in the middle third of esophagus			
Injuries			
Dilatations	{ Diverticula		
	{ Diffuse dilatation		

#### Foreign bodies

The relative proportion of the most frequently occurring affections in the 150 cases were:

Sensory neurosis	18.6 per cent	} 35 per cent
Motor neurosis	17.3 per cent	
Malignant growth	20 per cent	
Cicatricial strictures	14 per cent	
Foreign bodies	17.3 per cent	

In my work on the esophagus there have been two deaths. One followed a few days after a gentle attempt at dilating the epicardia-cardia in a case of far-advanced sarcoma. However, to judge from the post-mortem specimen in that case, it was questionable whether the death was due to the attempt at dilatation.

The other case was that of a chronic cardiospasm in which the opportunity was taken to stretch the epicardia-cardia under ether, which was administered for some other operative purpose. During this, some of the fetid-smelling fluid, contained in the greatly dilated gullet, was inhaled by the patient, and was followed by abscess of the left lung and by death.

#### NEUROSES OF THE ESOPHAGUS

The neuroses, in my experience, constitute the most frequently occurring affections of the gullet because they not only exist as primary or idiopathic affections, and also secondary to morbid conditions outside the organ, but a *local neurosis is present in every case of anatomical lesion of the gullet at some time*.

The importance of this will be further brought out by illustrative cases under the various headings.

#### SENSORY NEUROSIS

*Hyperesthesia and paresthesia.*—Hyperesthesia and paresthesia depend upon an abnormal increase in the irritability of the sensory nerves of the gullet. The patient may complain of pain on swallowing, or of the sensation of a constriction, pressure, burning or choking, or of the sensation of the presence of a foreign body.

1. Primary or idiopathic sensory neurosis of the gullet is perhaps not an infrequent occurrence.

Example: A business man thirty years of age, who had always been strong and well, suddenly developed dysphagia with the sensation of a constriction in the throat about one year prior to consultation. He stated that his first physicians attributed this to his stomach, but that later he had been referred to some one who had made the diagnosis of stricture in the upper part of the gullet and cardiospasm. He was consequently first treated with bougies, without benefit, and was then to have his cardia stretched. No esophagoscopic examination had been made. When I saw the patient he had lost twenty-five pounds in weight. On esophagoscopic examination the gullet was found perfectly normal. There were no signs of stricture in the upper

part nor was there any cardiospasm. It was a case of sensory neurosis. This information had a salutary effect upon the patient, who regained confidence in his ability to swallow and gained thirty pounds in weight without any treatment.

#### SECONDARY SENSORY NEUROSIS

Hyperesthesia or paresthesia of the gullet may be a symptom of an organic lesion of that organ or of a neighboring organ. It may follow a temporary lodging of a foreign body. It may also be a symptom of neurasthenia, hysteria, etc.

If, for instance, a careful history is taken in a case of cancer of the esophagus, especially of the upper part, it will be found that the patient first had a sensation as if there were a foreign body present, or a sensation of a raw spot in the gullet for awhile before, of a sudden dysphagia supervened. Sometimes a choking sensation with dysphagia will first be noticed. Such attacks of dysphagia soon disappear, and the patient may have little or no difficulty with his swallowing for some time (perhaps for one or more months), when, again, deglutition becomes difficult and now grows progressively worse, with occasional temporary complete obstruction. The dysphagia early in the disease, and the complete temporary obstruction late, are due to the secondary neurosis, sensory and motor.

Example: Male, aged 60 years. One year previous to consultation the patient noticed a sensation as if there were a foreign body in his gullet, and it was difficult to swallow solid food. At first this would come on, and repeatedly did so, only when he had a cold, but later a permanent, gradually increasing difficulty of deglutition came on. Two months before I saw the patient he had an attack of dysphagia accompanied by much pain, lasting one week, during which time he could only swallow fluids. After this he felt better and could eat everything except meat.

Esophagoscopy: An obstruction 16 cm. from incisor teeth was found to be due to a circumscribed growth, springing from the posterior esophageal wall. A small esophagoscope was passed by the tumor and the lower limit of the growth could thus be determined. A specimen removed for microscopic examination proved it to be carcinoma.

Example: A man, aged 74, had always been strong and well until fourteen months prior to consultation, when he noticed a sensation of a raw spot in the gullet, and a little pain on eating to the right of the sternum at the level of the third interspace. During the following seven months such attacks recurred frequently, but in the intervals the gullet felt perfectly normal. He could eat any kind of food. Occasionally he noticed just a momentary stoppage of the food in the gullet. He had consulted several physicians and on two occasions the stomach-tube had been introduced for the examination of the stomach contents. No diagnosis had been made. Between the seventh and eleventh month after onset there was difficulty of swallowing solid food on several

occasions. Three months before I saw the patient a diagnosis of cancer of the esophagus had been made by the aid of the sound by the thread method. After this he could swallow nothing but fluids.

Esophagoscopy: An ulcerated growth 29 cm. from the incisor teeth. Specimen removed for microscopic examination showed epithelioma. The stricture was dilated to 45 F.

The symptom just described as found early in a case of cancer of the gullet, may also be present in other lesions of the organ, and it may be present where there is no anatomical lesion of the organ whatever, as exemplified in the following cases:

Example: A woman, aged 42, had for a few months had intermittent attacks of dysphagia, with a feeling as if there were something in her throat. This was gradually getting worse, and although she thought the attacks due to nervousness she had a fear that it might be cancer. When after an esophagoscopy examination the patient was assured that there was no growth and that it was only a neurosis, her dysphagia disappeared.

Quite frequently patients ask advice for the sensation of the presence of a foreign body in the gullet, supposed to have been swallowed days, weeks, or months before. The patient can usually point out the location of the foreign body. On esophagoscopy examination a perfectly normal esophagus may be found and no foreign body. The assurance, however, of normal conditions after such examination, may be sufficient to relieve the patient of the sensation.

Example: A man, aged 57, said that he had swallowed a piece of a chicken bone, which had become stuck in his gullet, several weeks before he presented himself for examination. He stated that the piece of bone was felt somewhat below the larynx. It worried him considerably. His physician had introduced an esophageal instrument into the gullet, and declared that there was no foreign body there, nevertheless, the sensation remained.

Esophagoscopy examination revealed a normal gullet and no bone. The patient was entirely relieved after being assured of this.

The necessity of circumspection in the examination is well illustrated by the following case:

A woman, aged 56, gave the history of having accidentally swallowed a burnt-off match, and said that she felt it in the upper part of the esophagus. Her soft palate was perforated, and there was a peculiar scarred appearance of the pillars and the right side of the pharynx. She denied syphilis.

Two esophagoscopies were made with negative results, but the patient insisted that the match was there. In a third sitting I also examined the trachea, and in the upper end posteriorly I found a lesion that I suspected was a broken down gumma. The symptoms gradually disappeared under potassium iodide.

Dysphagia as a symptom of a constitutional neurosis or hysteria is not infrequent.

Example: Female, aged 29, was well up to three years before consultation, when she had a choking spell while eating supper and she could not swallow the food.

She had a similar attack eighteen months later, and since then attacks with almost every evening meal and later with other meals. For two weeks immediately preceding the examination she could hardly swallow fluids, while solids passed somewhat better. She was afraid to swallow. She was a highly nervous woman. Esophagoscopy revealed a normal gullet. The patient could now drink any quantity of milk or water in my presence, but she could not take it in her own home. She was referred to a neurologist, and recovered under suggestive treatments.

It is obvious that it would have been utterly impossible to make a positive diagnosis in these cases just described without esophagoscopy examination, if the cases of cancer had been seen early in their course, because the symptoms are alike, namely, the same expression of the local neurosis. As far as the symptoms are concerned, any one of these cases might have been that of cancer or other organic lesion of the gullet, or a foreign body or primary or secondary neurosis.

The earliest symptom of cancer, as well as of other lesions of the gullet then, is the expression of the accompanying local neurosis which is "*the signal of distress of the gullet*," which calls for esophagoscopy examination.

If a case upon such examination is found to be that of primary neurosis or a symptom of constitutional neurosis, the assurance of this has a beneficial influence upon the patient, and the exact knowledge affords the physician a better basis for treatment. If a non-malignant lesion is found, it may be dealt with accordingly, sometimes through the esophagoscope. If the case is found to be that of cancer in its early stage, this period naturally affords the best opportunity for surgical

interference, and if by resection we shall become able to do anything for the victims of malignant growth of the gullet, the diagnosis must be made early, and as all affections of the organ give the same expression, that can be achieved only by examining every case with complaint of the gullet, be it ever so slight, with the esophagoscope.

Much, therefore, depends upon the attitude of the one first consulted, who, as a rule, is the family physician. If he takes cognizance of the fact that all affections of the gullet give more or less the same expression, and that nobody can make positive diagnoses of affections of the gullet without the aid of the esophagoscope, he will insist that such examination be made, and thus render the greatest service to his patient by having a correct diagnosis established at the earliest possible moment.

#### CONCLUSIONS

1. All affections of the gullet have one main symptom in common,—namely, the disturbance of deglutition,—hence the impossibility of making positive diagnosis without the aid of the esophagoscope.

2. A local neurosis is present in every case of anatomical lesion of the gullet at some time.

3. The local neurosis is the "*signal of distress of the gullet*," and it is a call for esophagoscopy examination.

4. Where disturbance of deglutition is present, it is just as important to demonstrate the absence of a lesion, as to demonstrate the presence of one.

## INFANT-MORTALITY IN MINNESOTA

BY CHRISTOPHER EASTON

WHITE BEAR, MINNESOTA

In a study of the mortality of infants and small children up till the age of five in Minnesota, covering the years 1910-13, inclusive, which we made recently under the auspices of the State Board of Health, the most striking fact brought out, is the unusually low infant-mortality of the state as a whole. There are several ways of measuring infant-mortality, but the most satisfactory is based on the comparison of infant deaths with births. The rate for Minnesota, thus calculated, is 75.\* This is a very low rate when compared with that of most foreign countries,

and probably the lowest of any state in this country. We cannot say absolutely as to the latter, because there are only eight birth-registration states with which we may make comparison. In 1910 the lowest rate in any of these states was 108,—the rate for Vermont. New York State, particularly New York City, has shown rapid improvement since then; and its rate, which has just gone below the 100 mark, is probably the next lowest to that of Minnesota. It is possible that the State of Washington, which has always had a very low general mortality, may have a lower infant-mortality than Minnesota, but, if so, no figures have been presented to show it. Re-

\*There is an element, but a very small one, of estimate in this figure, necessitated by defective birth-registration in part of the state.



cent foreign rates range from 61, in South Australia, to 320, in Chile. The rate of the United States cities runs as high as 231, in Lowell, Mass., and abroad as high as 316, in Moscow, in 1909. Thirty years ago (1881-85) the only one of the great European cities with a rate below 150 was Edinburgh.

While Minnesota stands at or near the top of the list of states in the *absolute rate* of infant-mortality, and the mortality of children under five, when we consider this mortality in relation to total mortality, and break it up into the quotas furnished by the different children's diseases, we find that *proportionally* Minnesota infant- and child-mortality is quite normal. In other words, it is the low general mortality in Minnesota which makes our infant-mortality so small. Our low general mortality has been attributed to favorable age-distribution of the population, but the last census showed an age-distribution in Minnesota almost the same as that of the country at large. The 21,107 deaths considered in this study constituted 24 per cent of the deaths from all causes, as against 25.3 per cent for the registration-area of the United States in 1913, 24.4 per cent in 1912, 25 per cent in 1911, and 27 per cent in 1910. Of these 21,107 deaths under five years of age, 15,888, or about 75 per cent, were of infants under one year of age. This percentage also corresponds quite closely to that obtaining in the registration-area.

The classification of the diseases of infants and young children under five years of age is, at best, *from the statistician's point of view*, indefinite and unsatisfactory. Perhaps the most satisfactory statement that can be made is the very general one, that about one-quarter of the infants and small children who die, have died of diseases peculiar to early infancy, and for which prenatal causes and conditions at birth are largely responsible; another quarter of them from diarrhea; one-sixth of them from pneumonia and bronchitis; one-tenth of them from the four principal infectious diseases of the young,—measles, scarlet fever, whooping-cough, and diphtheria; and the remainder from miscellaneous and largely ill-defined causes; and that where public-health work is well organized the diarrheal and infectious disease quota is being reduced. In Minnesota the above fractions were, for the four-year period under consideration, slightly under one-third, one-fourth, one-sixth, and one-tenth, respectively. The striking fact here is that the proportion, not the absolute rate, of the deaths

for which in a general way prenatal conditions are held responsible is in Minnesota a high one. In each 100,000 of general population there are in Minnesota each year 190 deaths among infants under one year of age; and 79 of these are from congenital debility, premature birth, etc. Irving Fisher, in his hand-book on the conservation of vitality, regards this group of deaths as 40 per cent preventable. In New York City of late years milk-station work has extended to the prenatal instruction of mothers and with apparently gratifying results. Factory work undoubtedly has a bad effect on the pregnant mother, and the great mill-centers, like Lowell and Fall River, show it in their very high infant-mortality rates. In Minnesota, however, factory industry is only slightly developed outside of the three big cities; and we must look for some other explanation for the babies born too weak to live. About half of the babies in Minnesota are born of foreign-born mothers; but a special study of parent-nativity which we made failed to show that it exerted any appreciable influence on general infant-mortality in Minnesota, or on the mortality from congenital debility, etc. We have a suspicion that the more active life and greater ambition generally observed in Minnesota, extending undoubtedly to women, as well as to men, has something to do with the number of ill-born children.

The second leading cause is diarrhea and enteritis. The absolute rate under two years of age (the usual basis of comparison for this disease) is in Minnesota quite low, 53 for the four-year period as against 75 for the registration-area in 1913. The cool summers of Minnesota have been regarded as principally responsible for the favorable showing in infant-diarrhea. The proportion of deaths from this cause, however, is about the usual one-quarter noted above.

Measles shows in Minnesota the greatest variation from year to year of the various children's diseases. Diphtheria shows a marked reduction in the four years, as it does everywhere; but in regard to it Minnesota still has a favorable lead over the registration-area, as Minnesota also has in the case of scarlet fever. Whooping-cough brings Minnesota nearer than any other of the children's diseases to the registration-area level. The four infectious diseases noted above bear, in combination, about the same relation to the total mortality under five years of age in Minnesota that they do in the registration-area.

Few people realize how many accidental

deaths there are among small children. The following table will be interesting, not as showing any excessive mortality in Minnesota, but in itself:

ACCIDENTAL DEATHS OF CHILDREN UNDER  
5 YEARS OF AGE, MINNESOTA  
1910 AND 1912

Total .....	324
Burned to death (of these 40 were in burning buildings) .....	108
Drowned .....	43
Poisoned .....	37
Suffocated .....	32
Falls .....	15
Homicide .....	12
Killed by vehicles .....	13
Killed by machinery .....	2
Killed by firearms .....	7
Killed by pointed instruments.....	2
Injured by animals .....	6
Effects of heat .....	4
Effects of cold .....	2
Starvation .....	2
Miscellaneous accidental causes.....	39

Perhaps these totals of children burned to death and drowned and suffocated and poisoned, will impress Minnesota mothers with the need of taking no chances with young children. Industrial accidents, of which we have heard so much of late years, constitute by no means all of the fatal accidents. Let us have a "Safety First" campaign among mothers.

In regard to syphilis, which is an important cause of death among infants, the death-records would indicate that it is practically absent from the state, except in the three big cities. A fur-

ther investigation would, however, be required to ascertain whether this is really the case, or whether syphilitic babies from the country die in city hospitals. It seems rather odd that Minneapolis shows exactly twice as many deaths under one year of age from this cause as St. Paul.

In considering the differences in rates among the several counties, a generally higher rate is found both for all deaths under one and under five, and for particular diseases in the northern and northeastern sparsely settled counties. St. Louis and Lake counties have the highest rates. St. Paul and Minneapolis are not much above the average. The hardships of pioneer life, including the absence or poor quality of medical service, are undoubtedly a factor in the comparatively high mortality in the pioneer counties.

This study was made possible by the growing improvement in the registration of births. However, in nearly half of the counties the number of births reported is not quite as large as it ought to be, if we may judge by the census figures as to the population under one year of age. Incidentally, it is an interesting fact that both the infant population and the population under five years of age in Minnesota showed, between 1900 and 1910, not only a relative but also an actual decline. The United States Senate Immigration Commission study of the fecundity of native and foreign-born women in selected districts, several of which were in Minnesota, shows why the decline has taken place. If present tendencies in Minnesota continue, perhaps the infant-mortality problem will be eliminated by the elimination of infants!

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## CHIROPRACTORS IN MICHIGAN

This new cult which so recently sprang into public view, has been trying for years to get recognition by the States, and to secure a law which will provide them with a special examining board, in order that their students may not be man-handled by the real men in medicine. They had the courage to come to Minnesota, as has been previously recorded in THE JOURNAL-LANCET, to influence the passage of laws for their benefit throughout the state. They met with defeat, as they should, particularly as the home school and the home of the cult were in Iowa; and, when a corporation or a system is unable to attain legal standing in its own territory, it means that there is something wrong with the corporate body. Iowa has refused to recognize the legality of the chiropractors.

Recently, in Michigan a test case was made before the supreme court, in which the information filed charged one D. J. Healey with having wilfully and illegitimately engaged in the practice of medicine, in violation of Act 237 of the Public Acts of 1899, and acts amendatory thereto. The supreme court viewed the case very broadly, and finally put it under the head of the practice of medicine, and also decided

that the prosecution of such irregularities was a police regulation. It went on further to say, "that neither can the court concern itself with whether the system of treatment practiced by the chiropractors is a separate systematized, co-ordinated and arranged branch . . . which has firmly established its worth," or merely of a class of alleged methods of treatment without proof of merit, often skillfully heralded with extravagant assurances, and newly coined names as a thing inspired for the healing of the nations, to which the sick and afflicted, searching for a cure in their extremity, are prone to harken with credulity.

The court also questioned the advisability of a new and untried and unscientific measure, and the right to the serious business of treating human ailments for the purpose of restoring the sick to health, asserting that this matter was directly related to public health to protect which it is in the police power of the State. Undoubtedly, these people will come before the legislature year after year until they succeed in pressing themselves or insinuating themselves in the practice of medicine, and it behooves all state and county medical organizations to watch and protect the public from such insidious methods. Not that the profession is jealous or unwilling to accept any new method of treatment, but it feels that it is justice to itself that anyone who attempts to practice the healing art should be provided with the preliminary education and qualifications that will put him on the same footing as the medical profession. If these people would only recognize the fundamental principles in medical practice, and would accept the educational standards required in medicine, they could practice chiropractics or any other system with absolute and confident freedom, but when a so-called school turns out practitioners who have only theoretical knowledge, and a very poor and limited knowledge, of anatomy and physiology, they must expect opposition from regular men in medicine who have spent years, not months, in preparation for their work, and who have had years of experience in the actual practice of the healing art.

## SURGERY IN PARAPLEGIA

Every physician, and particularly every neurologist, sees numerous cases of paraplegia. They are not uncommon after an injury to the back, or a direct violence, either through a fall or a blow upon the spine. Sometimes these falls are



seemingly insignificant, and do not produce any immediate effects, yet the jar or concussion may be followed by very mild and insidious chemical, as well as tissue, changes in the spinal canal. The result is, that not infrequently the patient develops a slowly progressive paraplegic state; and then the question of diagnosis at once enters the field. Is this a tumor of the spinal cord or a transverse myelitis, or is it due to a cyst in the membranes?

The most common pathological conditions which accompany paraplegia, are a transverse myelitis, degeneration, or a destruction of a transverse segment in the cord. In the immediate paraplegia due to violence, this is commonly the condition found, although in some cases injuries have produced symptoms of a combined sclerosis, or of an isolated sclerosis, such as are commonly expected in cases of locomotor ataxia. Some of these injuries to the back produce a pseudotabes; and, fortunately, the outcome is usually good. The false symptoms disappear with rest and general treatment, which includes massage and things of that order; rest, however, is the primary relief. In other cases, where the onset is gradual and accompanied by pain, which radiates in a fairly uniform line, a tumor of the cord or canal may be looked for. Unfortunately, however, tumors of the cord produce a rather deceptive change of symptoms, in that the pain is not always in line with the compressed segment. In fact, it may be three or four segments above or below, owing to the ascending sensory columns or tracts in the spinal cord.

However, the investigation of the tumor brings to light the possibility of a cyst rather than a tumor being present. Cystic disorders of the membranes of the cord are not very common, and yet they may be more frequent than we have heretofore expected. They do the same amount of damage in their early course as do the tumors, that is, apparently. Of course, the compression is probably not as great, and the destruction of columns is not as extensive.

In a recent paper by Dr. A. L. Skoog, of Kansas City, read before the Nervous and Mental Section of the American Medical Association in San Francisco, in June, 1915, and printed on page 394 of the *Journal of A. M. A.* of July 31. Dr. Skoog comments upon spinal cord compression from leptomeningeal cysts, and reports two cases. He finds a number of other cases reported in the literature, and analyzes them;

but the presentation of his own cases practically covers the field of cystic cord states.

The diagnosis is somewhat difficult, but can be made with approximate certainty by a trained neurologist, who would be able to recognize the condition at an early stage. The difficulties in diagnosis are, that the symptoms are rather misleading. It is not difficult to diagnose a compression, nor is it difficult to diagnose the locality in which the compression occurs; and in most of these cases the disease is found in the lower half of the dorsal cord. There are usually a variability in pain, sensory disturbances, and motor weakness; and these three in themselves are rather characteristic of extramedullary cystic compression. Doubtless, many of these cases are overlooked, because the first impulse is to diagnose a compression myelitis, from which there is ordinarily no recovery.

The only treatment for such conditions is laminectomy, and it is necessary to remove from three to five of the laminae. Upon exposure of the dura, it is found bulging and tense, just as we find the dura in tumors of the brain. The dura may present various appearances, in fact it may be blue or reddened on account of the pressure underneath. Going through the dura, however, we find, not infrequently, a large amount of loose fluid, which gives one the impression of great pressure underneath. The cyst is usually found in the pia-arachnoid membrane; and underneath the cyst is the more or less compressed cord. In favorable and early recognized cases, the evacuation of the cyst gives a reasonably good prognosis. In the late cases, that is, cases of long standing, of several months or a year, the prognosis is rather unfavorable, particularly for recovery, and the only expectation is amelioration of the bladder symptoms which are quite common in cord compression.

Dr. Skoog reports that one of his cases which was recognized in its incipency, and operated on early, made a very good recovery, and his last record was that the patient walked well, that all of the bladder and spinal symptoms had either disappeared or were vastly improved, and that the patient was able to resume her household duties.

These cases are well worth studying and operating on, for there is no objection to a laminectomy, as all such cases recover from the operation promptly and without any after-effects, unless they are old subjects. Then they die, as do other cases of spinal cord compression.

## A LESSON IN VITAL STATISTICS

The following is a bit of correspondence that took place between a young physician, who graduated last year, and the executive officer of the State Board of Health. The letters rather emphasize the necessity of some kind of instruction to medical men, as well as other university students, as to the recognition of the exact terms and forms used in vital statistics. These letters are published simply to emphasize the difficulties which arise between physicians and the State Board of Health. Perhaps they will also help some other physician who is reporting births and deaths to understand that reports free from errors are very thankfully received in the Department of Vital Statistics.

There are certain laws which govern this Division which cannot be evaded; and the sooner the doctors are made aware of this fact, the better it will be.

In attempting to follow up birth-records, not infrequently several years elapse between the birth and the report of the birth. Consequently it is not strange that the Department of Vital Statistics should make very careful notation of errors, and try to have a correct and legal form on file. As this work is sometimes rather monumental, as shown by the fact that in 1914, 53,000 births were reported, and as these letters are a sample of what may occur many times, it is not strange that there is a lack of understanding between the reporter and the State Board of Health.

The doctor's name is not given for obvious reasons, but the letters can be verified if necessary.

August 20, 1915.

My Dear Doctor: The registrar of ——— has just sent this office the report of the birth of a child in the family of ———.

This certificate has been made out by you as attending physician. The year of birth is very plainly written, but it appears as "1913," and I am wondering if it is not a mistake and if this birth did not occur in 1915. The date of birth is given as "June 13th, 1913." Of course, you realize that the correct date of birth is an important item, and we shall appreciate your giving us definite information concerning this point before we place the report on permanent record.

Very truly,

H. M. BRACKEN,  
Executive Officer.

Dear Doctor: Your letter does not deserve being answered, except to advise you that it is just such things that have brought the S. B. of H. into such disrepute and further lead so many practitioners to avoid sending in any reports if they can get out of it. You don't think I would be sending in a report of a birth

of two years ago and in the month of June, also? I realize the importance of these matters but do not deny the possibility of making an occasional error but one of this sort when everything pointed to its being clearly an error, should be taken care of by you. You are by these acts disgusting the men who should be giving you the support you are lacking in getting proper appropriations.

Yours for better health,

August 25, 1915.

My Dear Doctor: I am very much surprised at your reply to our letter of inquiry relative to the year of birth of the child ———.

You state: "You do not think I would send in a report of a birth of two years ago, and in the month of June, also." Permit me to advise you that it is not an unusual thing for us to receive reports of births which occurred many years ago. Some of them go back as far as 20 years ago, and we have to keep the reports distinctly separate as to the year in which each birth or death occurred.

You refer to this as simply a clerical error. A clerical error of this kind is apt to make much trouble and inconvenience for any one who may need a certified copy of a record at some later date. We have daily requests for certified copies of records to be used for legal purposes. We cannot without authority from the one making out a report, change it in any case. If we were called upon to give a certified copy of this birth report, we would have to make an exact copy of the original, mistakes and all, and this would show the child as born in 1913 instead of 1915. This means that we will have to ask you to fill out the enclosed affidavit before a notary public, giving the correct date of birth, and this affidavit will have to be attached to the original certificate before it becomes of any legal value.

If our work connected with following up irregularities of this kind is what is making the State Board of Health unpopular, we regret the fact.

Very truly,

H. M. BRACKEN,  
Executive Officer.

September 3, 1915.

My Dear Doctor: Under date of August 30th, I wrote you as follows:

"In reply to your note on my letter of the 25th, in which you state: 'You may with my permission change that 3 to a 5, or return the certificate and I will, or return the enclosed together with 25 cents filing fee.' We cannot, even with your authority, change the figures on a legal document in this office. If you want to make out a new birth certificate, and turn it over to your local registrar, in order that he may change his records with your authority, then he can send in the corrected birth certificate which you give him with the request to us that we substitute the correct one for the incorrect one. We can do this, for the report in question has not yet been placed on file, nor record made of same. Your local registrar has copied the report of this child ——— and it is on his book with the incorrect year of birth, as given by you,—if he copied it exactly. Until we receive the corrected return, we will keep the incorrect one."

You return this letter with the second paragraph crossed out with red ink,—why, I do not know,—and with the words "return the certificate and I will change that 3 to a 5" underlined with red ink, and in the margin you have written the words "Please answer."

We are surely having some very interesting correspondence. I beg to assure you that your correspondence is going to be given a good deal of publicity. I learn that you stood well at the University of Minnesota, and graduated a year ago, and yet you start out in your practice by finding fault with me because I sent you a letter asking for information relative to an incorrectly reported birth.

You have a good deal to learn about legal matters yet. The words that you underlined "return the certificate and I will" indicate this fact among other things that have occurred in connection with our correspondence. When we once get a certificate of birth or death in this office, we hold on to it, for it is a legal document. When you send us a corrected copy of this birth, we will substitute it for the first one (incorrect) which you sent in, and will advise you of that fact.

You ask us, on the back of the second letter which I wrote you, under date of Aug. 25th, to return the enclosed (which was the form for an affidavit to be sworn to before a notary public) with 25 cents filing fee, as the alternative of not making the correction which you told us we could make of the figure 3 to 5. It was not our mistake, and there is nothing in the law that permits us to pay fees for filing an affidavit concerning your own mistake.

Now, my dear doctor, I would suggest that you should have known your duty before you left the University of Minnesota relating to these matters, but that if you did not know it at the time you commenced practicing, you should not have taken offence when we tried to set you right. We are always glad to help educate the doctors on such matters, even after they graduate. We are very glad that, as a rule, our help is appreciated by physicians, and seldom treated as it has been in the present case.

We await the corrected certificate.

Very truly,

H. M. BRACKEN,  
Executive Officer.

## MISCELLANY

### MEMORIAL RESOLUTIONS PASSED BY THE HENNEPIN COUNTY MEDICAL SOCIETY SEPTEMBER 6, 1915

LEON J. CORIA

Dr. Leon J. Coria was born in Michigan and died August 21st at the Leamington Hotel in this city, after a brief illness, aged 34 years.

He was a graduate of our Central High School, and he received his medical education at the University of Minnesota, from which he was graduated in 1904. In association with Dr. Kiefer, he engaged in practice at Kelliher, Minnesota, for a time. He afterwards visited Berlin and Vienna for study. He next engaged for a time in railroad construction in Montana and Canada. Later, after spending some time in New York

in preparation for special work in the eye, ear, nose, and throat, he opened an office in March last in the Pillsbury Building. He became a member of the Hennepin County Medical Society.

ABRAHAM BARKER CATES

Abraham Barker Cates, son of Charles Cates, M. D., and Margaret Buffum Cates, was born at East Vassalboro, Maine, May 12, 1854, and died at his country home on Clearwater Lake, Minnesota, June 16, 1915, aged 61 years.

He began teaching school at the early age of fifteen to aid him in procuring his education. He was graduated from Colby Institute, Maine, and from Harvard Medical School in 1880. After one year of clinical study in hospitals in Berlin and in Vienna, he came to Minneapolis in 1881, and entered upon the practice of his profession. He served for a time as city physician. He gave special attention to obstetric work, in which he won for himself a distinguished and honorable place.

He was lecturer in the old Minnesota College Hospital, and afterwards he became professor of obstetrics in the Medical School of the University of Minnesota, which place he held until his final illness and death. He was reputed to be unexcelled in the Faculty of the Medical Department as an efficient teacher. He was obstetric surgeon for the Northwestern Hospital and for the Maternity Home.

The original conception of the Elliot Memorial Hospital at the University is credited to Dr. Cates, and he was also the moving influence behind the Trask Endowment for that institution.

Quoting from one in close touch with his life: "Dr. Cates' ambition, push, and ability were unusual from the start. These, combined with a strong will and a very unusual and unbending integrity, were his chief characteristics. With all this he was not much of a 'fighter,' and he bore injustice quietly, taking little part in controversies."

The following memorial by the Administrative Board of the Medical School of the University is presented here as a worthy tribute to our deceased brother:

"Dr. Cates' loyalty to the friends who trusted him, his faithfulness to every trust reposed in him, his unflinching courtesy and consideration towards others, his untiring industry alike in teaching and in practice, his high-minded reserve under circumstances of difficulty and essential change, the inspiration he gave to the pupils he taught for so many years, were but the outward manifestations of character in him.

"Like the Israelite of old, he was a man in whom there was no guile, a man of intrinsic righteousness of thought and act. He was the embodiment of personal and professional integrity. His own ethics were beyond the need and above the dictum of any ethical code. Young men trusted him; old men counselled with him; patients unreservedly placed themselves in his hands; students sat at his feet; and each with an intuitive faith that he was all that he seemed to be. One of the last of the original Faculty of the Medical School, he has rendered to it many years of but partially rewarded service, in which he has given in full and generous measure of his rare gifts as a teacher.

"Whereas, there has been removed from our midst and from the activities of life, a brother well and honor-



ably known among us, Dr. Abraham B. Cates, a man highly esteemed and beloved by us because of his excellent qualities and high attainments.

"And whereas, we are sensible of the loss we have sustained in the death of Dr. Cates, not only on account of his eminent skill as a practitioner and his wisdom as counsellor and teacher in his profession, but also as a friend and comrade, kind and upright and faithful in all the relations of life.

"Therefore, be it resolved, that while under a sense of our bereavement, we shall miss him from our ranks, we will ever cherish his memory and strive worthily to emulate his many noble qualities.

"Be it also further resolved, that a copy of these resolutions be conveyed to his family and that they also be spread upon the minutes of the Hennepin County Medical Society."

CHARLES HERBERT BRADLEY

Charles Herbert Bradley, son of George M. and Harriet W. Bradley, was born in Greene county, Illinois, Nov. 16, 1865. In his early life his parents removed to Minnesota and settled on a farm near Mankato. He attended high school at St. Peter, and later Hamline University. He obtained his medical education at the Northwestern University of Chicago, and was graduated in 1890. He served as interne in Chicago Mercy Hospital one year, and from 1891 to 1897 he was assistant physician in the Illinois Eastern Hospital at Kankakee, after which he returned to Minnesota, and entered upon the practice of his profession in Minneapolis.

He married Carrie L. Brooks at Mankato in 1898, and to them were born a son, Herbert, and a daughter, Lurane. He died Aug. 1, 1915, aged near fifty.

He was professor of physical diagnosis and internal medicine for several years in the Medical Department of Hamline University, and he was also instructor in medicine in the University of Minnesota 1912-13. He was a member of the staff of Minneapolis City Hospital and consultant to Asbury Hospital. He was Secretary-Treasurer of the Hennepin County Medical Society for six years, and afterwards its President. He was a member of the Minnesota State Medical Society, a fellow of the American Medical Association, and a member of the Minnesota Pathological Society.

Dr. Bradley won an enviable place in his profession, not alone by reason of his fine qualifications as a physician, but also by his personal worth. He was genial, courteous, and obliging in his intercourse with his fellows; he gave freely and faithfully of his time, his energy, and his skill to his patients, and he also earnestly endeavored to exalt the standard of his profession, and also to give instruction in better and more sanitary ways of living.

WHEREAS, Dr. Chas. H. Bradley has been removed by death, thus ending his years of activity and usefulness amongst us; and

WHEREAS, by his death the Hennepin County Medical Society has lost a valued officer, a wise counsellor, and an all-round useful member; and

WHEREAS, there has been lost to his confreres a brother beloved, a true friend, and an efficient co-worker; and

WHEREAS, there has passed out of service into rest a physician whose cheerful, unselfish, and faithful devotion of himself to the care of his patients and to his

family, and whose untarnished, upright, honest life was manifest to all who knew him, therefore be it

*Resolved* by the Hennepin County Medical Society that we hereby express and record our sincere sorrow and regret over our loss, and that we extend our deep sympathy and condolence to his bereaved family; and further, that these resolutions be spread upon our minutes and that a copy of same be conveyed to the family of the deceased, and also that a copy be furnished the JOURNAL-LANCET for publication.

D. O. THOMAS, M. D.,

W. AURAND, M. D.,

J. H. STUART, M. D.,

Committee.

## NEWS ITEMS

Mrs. Mattie Peterson has established a private hospital at Akeley.

Dr. Dewey Sutton has moved from Wolsey, S. D., to Huron, S. D.

Dr. John Lyng, of Fergus Falls, has returned from his European trip.

Dr. W. E. Clark has moved from Harvey, N. D., to Aberdeen, S. D.

Dr. B. S. Adams, of Hibbing, has been attending clinics in Chicago.

Dr. T. A. Peppard, of Minneapolis, has located at Devils Lake, N. D.

Dr. G. A. Larson has moved from Blanchardville, Wis., to Superior, Wis.

Dr. S. G. Gibson has moved from Osnabrock, N. D., to Dunn Center, N. D.

A new addition to the Lenont Hospital at Virginia will give eight private rooms.

The Minneapolis City Hospital will open a school for nurses covering a three years' course.

The physicians of Duluth have united in an effort to have an emergency automobile ambulance.

Dr. I. C. Vangsness, of Beresford, S. D., was married last month to Miss Cora Gilbertson, of Lisbon, N. D.

Dr. A. J. Kirghis, of St. Cloud, has been "called to the colors" by France. He left for France last week.

Dr. H. M. Erenfeld has sold his practice and hospital interests at Anamoose, N. D., and will move to Minot, N. D.

Dr. Geo. C. Hanson has moved from Seattle, Wash., to Ray, N. D. Dr. Hanson formerly practiced at Charlson, N. D.

Dr. Frederick Brown, of McClusky, N. D., has rented a hotel building at that place which he will convert into a hospital building.

Dr. H. M. Presler, of Cullom, Ill., has purchased the practice hospital, practice, and residence of Dr. H. M. Erenfeld, of Anamoose, S. D.

Dr. Earl E. Cress, who was an interne at the Swedish Hospital of Minneapolis in 1910, and later practiced in North Dakota, has located at Boyd, Minn.

Dr. Carroll Fox, of the U. S. Public Health Service, who made a health survey of Minnesota two years ago, is now engaged in a like survey of North Dakota.

Asbury Hospital, of Minneapolis, has let the contract for an addition to its hospital building to cost \$125,000. The addition will increase the capacity to 184 beds.

The dedication of the new building of St. John's Hospital, St. Paul, will probably take place on Nov. 1. The building will cost \$125,000, and will be a model structure.

Dr. O. T. Johnson, of Morris, was married last month to Miss Martha Griffith, of the same place. Dr. Johnson graduated from the University of Minnesota in the class of '14.

A stock company has been formed to build a hospital at Carrington, N. D. Plans for a building to cost about \$12,000 have been drawn by Architect G. R. Horton, of Jamestown.

Dr. W. L. Rodman, of Philadelphia, President of the American Medical Association, will be the guest of the Hennepin County Medical Society next week, and will deliver a free public lecture on the control of cancer on October 4.

The directors of the Children's Home of Sioux Falls, S. D., have had plans drawn by a Chicago architect for a new hospital building. The drawing shows a beautiful building.

Dr. W. H. Boals, physician for the Keeley Institute of Minneapolis, died last month at the age of 65. Dr. Boals practiced for twenty years at Clark, S. D., and for a number of years in Fargo, N. D.

Dr. S. M. Johnson, a member of the staff of the Shaw Hospital, Buhl, was married last week to Miss Louise DeHaas, of Minneapolis. Dr. Johnson is a graduate of the University of Minnesota, class of '09.

The St. James Hospital and Sanitarium, of St. James, has put in a mud or clay bath depart-

ment. It is claimed that the clay found near St. James possesses curative agents not found in many muds used for baths.

Contracts have been let for the tuberculosis sanitarium buildings at Granite Falls. The sanitarium will be built by Renville, Yellow Medicine, Lac qui Parle, and Chippewa Counties. The capacity of the sanitarium will be forty-four beds.

Dr. W. D. Kirkpatrick, a graduate of the University of Minnesota, now practicing at Bellingham, Wash., has returned from Serbia, where he assisted in the work of stamping out typhus fever. He was a member of the American Red Cross party.

Indiana has been added to the list of states with which North Dakota has reciprocity. This list includes Arkansas, Georgia, Illinois, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, South Dakota, Texas, Vermont, West Virginia, and Wisconsin.

Dr. H. E. Robertson, acting Dean of the Department of Pathology, Bacteriology, and Public Health of the University of Minnesota, recently received a very flattering offer to become pathologist of the Murphy Clinic, of Chicago; but the University has fortunately succeeded in retaining his services.

Press dispatches from Paris state that Dr. Kenneth Taylor, formerly of St. Paul, and a graduate of the University of Minnesota, has discovered a remedy for the gas bacillus in wounds. Dr. Taylor has been doing research work in Paris for the past eighteen months, and is now connected with the American Hospital.

The Milk Commission of the Hennepin County Medical Society asserts that one-half of the infant mortality in Minneapolis is due to using impure milk. The Commission began several years ago to arrange for the shipment of milk branded by the Society's seal as "Certified Milk" and "Special Inspected Milk." Over a thousand bottles a day of such milk is received.

The Rosebud District Medical Society of South Dakota held its quarterly meeting at Fairfax, S. D., September 14. About all of the physicians of the district belong, and a large percentage of them were in attendance. The Society was welcomed by the mayor, and after the program closed an excellent banquet was given

by the Commercial Club, the ladies adding largely to the pleasure of the meeting.

The staff of the Medical Department of the University of Minnesota is composed of professors, associate professors, assistant professors, instructors, and teaching assistants, all being members of the faculty except the teaching assistants. On several occasions recently we have used these titles carelessly. We spoke of Dr. R. O. Beard as an *assistant* professor of physiology; he is an *associate* professor. We spoke of Dr. P. I. Hiebert as an *assistant instructor* of surgery. There is no such position; he is a *teaching assistant* in surgery.

#### LOCUM TENENCY WANTED

A recent graduate, who has had experience, wishes work until January 1. Can give references. Address 255, care of this office.

#### PHYSICIAN WANTED

Wolverton, Minn., has an opening for a good doctor. This is a Scandinavian community. Write W. F. Williams, Druggist, for information.

#### MINNEAPOLIS OFFICE FOR RENT

In Masonic Temple, on second floor, fronting on Hennepin avenue, two rooms and joint reception-room, with oculist and oto-laryngologist. Call at 203 Masonic Temple, Minneapolis.

#### PRACTICE FOR SALE

Good location in most central part of North Dakota; collections over 98 per cent. \$500 to \$800 will handle the deal. A good opportunity for a good man. Address 250, care of this office.

#### OFFICE ASSOCIATE WANTED

Eye, ear, nose, and throat man wanted to office with general practitioner on Lake Street, Minneapolis. American preferred. Fine opportunity; good field. Address 248, care of this office.

#### WANTED—TWO INTERNES

At the Norwegian Deaconess Hospital, Minneapolis. This hospital is a general hospital, new and up to date with 100 beds. Address application to Dr. A. C. Tingdale, Syndicate Building, Minneapolis.

#### SITUATION WANTED

A young lady with experience in general office and reception-room work, treatments, dressings, and various requirements, desires a position with one or more doctors. Address 261, care of this office.

#### ASSISTANTSHIP WANTED

I wish a position in or near the Twin Cities that I may devote part of my time to, and have time left for, postgraduate work. Might consider a locum tenency or institution work. Address 254, care of this office.

#### APPARATUS FOR SALE CHEAP

Betz Galvanic and Faradic Wall Cabinet, oak finish and bevel-plate glass; also 50 wet cells; 1 Betz Giant Cautey; 1 small hand Vibrator; a variety of surgical instruments. Owner recently deceased. Address 252, care of this office.

#### LOCATION WANTED

Twenty-five dollars will be given for information leading to a satisfactory location in Minnesota, or a state reciprocating with Minnesota, by a physician of eight years' experience in general practice. Address 251, care of this office.

#### PRACTICE FOR SALE

Practice of \$3,500 to \$4,000 in town of 1,000, located 40 miles from Minneapolis. Collections, 95 per cent; competition, right. \$500 takes first-class office equipment and practice. Reason for selling, moving to city. Address 247, care of this office.

#### LOCUM TENENS WANTED

I want a regular physician to take my practice for three and a half months. Must be a man with at least one year of experience in either general or hospital work. Will pay good salary. Address 256, care of this office. Good location in east central North Dakota.

#### LOCATION OFFERED

Wanted, a doctor to locate in a small town in North Dakota of about 250. Good large territory on the east with fair territory on the other sides. Rich farming country all around. A good building and fixtures for a stock of drugs can be procured or rented very reasonable. For more data write the State Bank of Alice, Alice, N. D.

#### PRACTICE FOR SALE

I have been located for nine years in a town of between two and three hundred population in the northern part of North Dakota. There is no doctor nearer than 11 miles north, 18 miles east or west, and 16 miles south. Have a neat office. Town has good school, church, and first-class drug store. Will sell to purchaser of office furniture and lot. Location is certainly good and price is easy. Address 258, care of this office.

#### PRACTICE FOR SALE

A \$4,500 practice for sale, best location in Southern Minnesota, in town of 600 on two railroads, growing rapidly, thickly settled country. Two towns without doctors in territory; fine roads. New modern home with office and garage. Will sell on easy terms or exchange for farm land. Collections 100 per cent, thorough introduction. Practice could be greatly increased by office work and surgery. Leaving to specialize. Address 259, care of this office.

#### DOCTOR

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-ninth annual session opens September 27, 1915, and closes June 3, 1916. New Orleans Polyclinic, P. O. Drawer 770, Graduate Medical Dept., Tulane University of Louisiana.



## PUBLISHER'S DEPARTMENT

### MOTOR OILS

Gasoline and oil make the motor go. The state looks after the quality of your gasoline, but you are at the mercy of the dealer who sells you oil, and he may be at the mercy of the jobber and the manufacturer. If you buy "Polarine," you have back of you every agent of the Standard Oil Co., as well as this great company. It is foolish to buy "any old" oil, when you positively know that "Polarine" is backed by the reputation of the greatest lubricating oil producers in the world. Save your patience and, possibly, your patients by using "Polarine."

### QUAKER OATS

To one who has eaten "Quaker Oats" for fifteen or twenty years, and knows that they are the best oat product in the world, it is a wonder that everybody else does not know this. Of course, everybody does not know it, but anyone who practices medicine and wants his families to have the best, it is worth while to test out the Quaker brand with all comers. The verdict is sure: Quaker Oats are the best.

### TUBO-ARG

The Tubo Pharmacal Company, of Duluth, Minn., has put on the market a device for the administration of medicine in gonorrheal cases that meets a long-felt want, as by it all danger of spreading the infection is removed, and the dangerous and dirty syringe is dispensed with.

The success of the Company is due to the fact that the best physicians use and recommend their device, and this is also evidence of the fact that the Company is working along right lines.

### FRANK S. BETZ CO.

The Betz Co. makes, on another page, an offer of an electric-light cabinet at a very moderate price and on attractive terms. This Company has grown to enormous proportions, and takes pride in its guarantee of perfect satisfaction for every article sold. Such a guarantee should remove all doubt about the exact truth of the Company's claims in regard to any article offered the profession.

### STILL ROCK SPA

Still Rock Spa, of Waukesha, Wis., is a 100-room hospital, in a beautiful city, with attractive grounds, where patients from all parts of the country go to receive treatment for diabetes and Bright's disease, which are there treated exclusively. The Spa has established a high reputation for its work, and physicians who have intractable cases of the above disease will do well to correspond with Dr. A. J. Hodgson, the physician-in-chief of the Spa.

### MUDCURA SANITARIUM

Shakopee is becoming a real mecca for rheumatic patients who fail to find relief in the ordinary or special

lines of treatment devised by modern scientific medicine. Very few patients take the mud baths at Dr. Fischer's Sanitarium without almost immediate relief; and almost no case is so obstinate that the baths, massages, and mechano-therapy will not materially help, if they do not cure.

Dr. Fischer has had a gratifying experience in his institution,—the experience of giving relief, if not a permanent cure, to almost every patient who has visited his Sanitarium since its establishment.

The building is steam-heated and modern in all respects, and patients are just as comfortable there in January as in June. Mudcura is a station on the Milwaukee and Northwestern railways only a few miles from the Twin Cities. It is a mile or so from Shakopee.

### VAN HORN & SAWTELL

Catgut, Interoil, and K-Y Lubricating Jelly are three products offered by the above firm that have gained among the leading surgeons of America an unexcelled reputation for excellence; and they are products that will tolerate no defects without immediate auto-self-revelation, if we may coin a word to express a condition in manufactured products upon which human life is so dependent. An internal or external wound dressed with a defective catgut, is a very dangerous thing under the most favorable conditions; an internal oil dressing for mucous membranes is likewise capable of doing great harm if a harmful ingredient gets into it; and a lubricant for instruments that come into contact with either pathologic or non-pathologic membranes must be above suspicion.

The products of Messrs. Van Horn & Sawtell have stood the tests of time and experience in the hands of the best men in America, and can be used by the surgeon with perfect freedom from anxiety as to bad effects from them.

### THE AUTOMATIC CHEMICAL CLOSET

The modern water-flush closet connected to a sewer, comes pretty near being the greatest invention of modern times. Can its equal be found for use in the private house, the hospital, the public school, the hotel, and other like buildings without a water and a sewer system? The comfort and the health of the individual demand it; and the reward for the inventor is very great.

An automatic chemical closet invented by a Minneapolis man, and now being put upon the market by a Minneapolis and a New York firm, comes pretty nearly, if not entirely, meeting all the stringent demands made upon such a closet, demands formulated by scientific sanitariums and health officers.

The Auto-Kem-Clo, the new closet's suggestive name, has a vitreous china bowl with the exact appearance of the high-grade water-flush bowl of modern plumbing. It is installed like the water-flush bowl, and has a vent-pipe and a waste-pipe, the latter leading to an out-door tank. Thus the modern esthetic demand is perfectly met. But what of the sanitary demand?

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First.—When the closet is used, an automatic spray of an oily, deodorant, and partially germicidal liquid covers the inside of the closet and mixes with the waste, which at once passes out of sight. A new charge of chemicals goes into the bowl at each flushing; and a forced draft carries all odors up the stack. The disinfectant in the bowl is sufficiently strong to destroy typhoid, and other bacilli, but, if any escape destruction in the bowl, the oily spray prevents their escape into the air or otherwise, and thus they cannot come into contact with a person.

Second.—The first compartment of the retarding tank holds the solid part of the waste, whose spore-producing organisms, not having been destroyed in the bowl, continue their bacterial action, and set up a fermentation and consequent liquifaction of the solids.

Third.—The liquid thus freed from the solids by a natural process going on in the first compartment, passes into the second compartment, and then after a settling process overflows to the third compartment. The passage of the liquid into the third compartment automatically releases a germicide sufficiently strong to kill all germ life.

The sterile liquid passes into the fourth compartment, and in its passage sets up an automatic siphonic drainage periodically emptying the fourth compartment.

Though somewhat difficult to describe, all the actions of this closet are as simple as the overflow of water from a tank with an overflow-pipe.

Theoretically from a laboratory standpoint, and practically from a long-continued test of the system in actual use, there will rarely ever be an accumulation in the tank requiring removal; and the liquid waste is so slight and so absolutely sterile that soil-contamination is impossible.

The facts above stated have been attested by physicians, sanitarians, and bacteriologists in both the West and the East.


And this closet sells at a moderate price, because its simplicity makes its cost of manufacture moderate.

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The Autumn months constitute the season during which the average practicing physician is called upon to treat the following conditions: 1. Typhoid Fever, which is, more often than not, contracted at some unhygienic Summer resort. The patient may return home during the first week or so, with headache, malaise, etc., or the premonitory or primary symptoms may appear after reaching home. 2. Malarial Infection, in certain sections, which is more than usually rife in the Spring and Fall seasons. 3. The after results of the gastro-intestinal disorders of infants and young children, due to improper feeding, etc., during the heated term. In almost every instance, when the acute symp-

toms have subsided, a condition of anemia and general devitalization is the final result that constitutes the essential indication for treatment. In convalescence from all forms of illness resulting in general debility, Pepto-Mangan (Gude) is the one ideal tonic and re-constructive. It not only revitalizes the blood, but also tones up every physiologic function. It stimulates the appetite, improves the absorptive capacity, increases energy and ambition and restores the blood to its normal condition. It is, thus, a general tonic and re-constituent of marked and certain value.

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# THE JOURNAL-~~L~~ANCET

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## CONTRIBUTIONS OF THE TWENTIETH CENTURY TOWARD A BETTER UNDERSTANDING OF GASTRO- INTESTINAL AILMENTS\*

BY FRANK SMITHIES, M. D.

Gastro-enterologist to Augustana Hospital; former Gastro-enterologist to Mayo Clinic, Rochester, Minn.; and Instructor in Internal Medicine and Demonstrator of Clinical Medicine, University of Michigan, Ann Arbor, Mich.

CHICAGO, ILLINOIS

Gentlemen:

Let me assure you that I esteem it a very distinct privilege to address this Association upon the occasion of its annual meeting. Especially is it a high honor to appear before you in Bismarck, a city which lays claim not alone to harboring the executive forces of your state government, but also to the possession of one of the most progressive surgical clinics in the Northwest.

I take it that the main value of occasions such as this rests in possibilities for the readjustment of ideas, medical. To many of us, the daily grind of ordinary practice admits of little opportunity for excursion into paths of professional work other than our own, great as may be our desire to so deviate. Such being the case, it would appear that the type of discourse which I offer may have a wider field of usefulness than might at first seem to be apparent.

That ailments of the alimentary tract warrant more than passing attention, is supported by my observation that in a certain clinic enrolling close to 25,000 patients annually, approximately one individual out of six complained of some abnormality of digestion. In one out of every ten, it was the *cause* of the patient's seeking medical advice. That more generally diffused knowledge

concerning the clinical course of gastro-intestinal ailments is necessary, is indicated by the fact that of three patients recently admitted to my hospital service with diagnoses of gastric cancer, one was affected with cardiospasm associated with diffuse dilatation of the esophagus; a second proved to be an instance of amebic colitis, while the third was an example of gall-stones, with pancreatic inefficiency.

The dominant characteristic of twentieth-century medicine is the search for facts, and particularly the search for such facts in the *living*. In no land is this restless spirit more strikingly manifested than in America. It indicates a return to the ancient Greek school of science, as typified by Hippocrates, later revived by Linacre, Sydenham, and Harvey, with Osler, MacKenzie, Cushing, Dock, Gorgas, Robson, Moynihan, Noguchi and Rous as some of its modern representatives. The *abstract* investigations of the continental professor are rapidly giving place to studies of actual problems as they appear clinically, and such studies are yielding *concrete* information of practical worth in aiding the afflicted. In no line of professional endeavor has independence of thought and of action returned information of greater value than have recent investigations of the alimentary tract in health and disease.

Certain twentieth-century influences have been

\*Oration in Medicine, delivered at the 34th annual meeting of North Dakota State Medical Society, Bismarck, N. D., May 12, 1915.



of material service in bringing about radical changes in our conception of the cause and course of gastro-intestinal ailments. Chief among these I would mention the opportunities presented to laboratory workers for the study of pathology in the living by the surgeon; improvements in medical education which have resulted in making available trained groups of research scholars; the establishment by state or private funds of institutions permitting the close association of the scientific and the clinical student; the extensive use of animals for experimental purpose; better knowledge of the adaptability of the x-ray; and, finally, the application to humans of biochemic procedures.

In the limited time at my disposal, it is manifestly impossible to do more than barely mention the progress that has been made. Only the pointings of the main advances can be indicated. That such statement is possible, is surely proof that medical progress in the present century is being satisfactorily maintained.

To facilitate their presentation, I would classify these contributions of the past fifteen years to a better understanding of gastro-intestinal anomalies, as (a) physiological; (b) bacteriological; (c) pathological; (d) experimental, and (e) clinical, both medical and surgical. With your permission, I will briefly consider these divisions seriatim.

A. *Physiological*.—The impetus given to this phase of research by Pavlov and his pupils has resulted in numerous classic observations, the majority of which have practical clinical bearings. Pavlov's work served not only to place the physiology of digestion upon a firm foundation, but preëminently taught the value of laboratory research *in vivo*. It is largely due to the influence of the Petrograd school that we are indebted for the brilliant discoveries of Bayliss and Starling, Cannon, Auer, Carlson, and others. These results have tended to establish facts with respect to both the *secretory* and the *mechanical* processes of digestion. Their laboratory observations are a rich mine of clinical truths. We now know that secretion of gastric juice is directly proportionate to the amount of ingested food; that the acidity of gastric juice is closely dependent on the rate of secretion; that trypsin is digested or rendered inert by pepsin; that gastric ferments depend upon the character of food for their concentration; that different types of food call out varying strengths of gastric ferments; that mechanical irritation of the stomach-lining does not cause flow of digestive juices,

such being wholly dependent upon central nerve excitation,—in other words, "appetite means gastric juice"; that pancreatic activity is practically under the control of "hormones" developed as the result of acidity of the gastric secretion, and carried through the blood-stream; that the flow of bile is similarly excited, and that bile *inhibits* peptic digestion and accelerates pancreatic digestion; and that the small intestine secretes a ferment, "enterokinase," which forms a valuable complement to pancreatic juice in splitting albuminoid bodies to lower radicles sufficiently simple to permit absorption.

Much light has been thrown by physiologic studies upon the mechanical factors in digestion. Cannon has shown that the acidity of the gastric juice plays an important part in the closure of the cardia, due to a local nervous mechanism. Serdinkov has demonstrated that the movements of the pylorus are under the control of the duodenum, and Cannon has shown that the closure of the pylorus is wholly dependent upon the acid content, quantitatively, of the first portion of the duodenum. These facts have especial bearing upon gastric and duodenal ulcers. Valuable observations upon the bearing of different types of food upon the rate of gastric and intestinal peristalsis have been made by Bayliss and Starling, Cannon, Houckgeest, and Carlson. It has been shown that carbohydrates pass most rapidly along the gastro-intestinal tract, and proteins most slowly. Fats occupy an intermediary position. These workers have also contributed useful information respecting peristalsis in the colon. Clinically, the most important is the demonstration of antiperistalsis moving toward the cecum. While the ileocecal valve is usually able to withstand the initial antiperistaltic waves, not uncommonly, as Sabbatani and Fasola, and Cannon have shown, enemata or normal contents of the colon may be forced back into the small intestine. It would seem that this observation has an important medical and surgical bearing.

B. *Bacteriological and Serologic Investigations*.—Bacteriological and serologic investigations have been concerned, namely, with attempts at demonstrating the causative relationship existing between micro-organisms and gastric ulcers. It is a common observation that gastric ulcers not rarely follow closely after some systemic infection: for example, measles, influenza, typhoid fever, scarlet fever, and the like. Such clinical association has led to the supposition that the bacteria causing such maladies might in some way produce ulcers. Many successful attempts

have been made to experimentally cause peptic ulcer by bacterial injections. It has been shown that numerous organisms are capable of producing such ulcers. Dieulafoy employed *pneumococci*; Widal and Ruffer, *bacillus pyocyaneus*; Chantemesse and Widal, *bacillus dysenterii*; Wurty and Leudet, *bacillus acidi lactis*; Rosenow, *streptococcus*; and Gaudy and Griffon, *meningococcus*. The kind of organism does not seem to bring about specific types of ulcers. The pathology is essentially similar in all instances. Moreover, in all the above groups of experiments, the injected bacterium could be isolated from the walls of the ulcers.

Recently, bacteriologic studies of tissue about gastric ulcers have demonstrated the presence of micro-organisms in the deep lymph-gland chains. These observations are of particular worth in so far as they explain certain factors regarding the recurrences of healed ulcers, and also indicate that attempts at disinfecting gastric contents in the hope of thereby healing ulcers, have very little clinical value. These experiments in tissue-culture also prove that the hope of healing such lesions by means of coating the ulcer surface with bismuth, silver nitrate, and the like, is very slender. A most interesting observation has recently been made by Rosenow. He appears to have shown that strains of bacteria isolated from the mouths of patients affected with gastric ulcer, are capable of producing similar ulcers in susceptible animals. He has also shown that the organisms injected intravenously have a peculiar affinity for the gastric lining, and can be recovered from experimental gastric ulcers. Just whether or not these observations indicate that peptic ulcers occur as a consequence of the lodgment in the gastric mucosa of blood-borne bacteria carried from an adjacent or distant local focus of infection existing somewhere in the body, has not yet been definitely proved, although Rosenow's experiments are worthy of study. The clinical bearing of this work lends a certain support to this view. It is a commonly observed fact that the great number of individuals who come to us with gastric ulcer have concomitant disease of the appendix or gall-bladder, or both. In a recent study of 500 cases, proven surgically to be gastric ulcer, I was able to demonstrate this co-relation of disease in 50 per cent of instances. It is also the observation of clinicians, generally, that subacute or chronic infections of the appendix or gall-bladder may strikingly simulate gastric ulcer symptomatically. This is particularly so when such affections occur in individuals below

the age of 30. It will be recalled that the stomach, gall-bladder, and appendix are interconnected by nerve elements as a result of their having similar embryonic origin. It would seem that blood-borne infection lodges first in the appendix or gall-bladder, doubtless as a consequence of interferences in circulation. The lymph-streams from these parts are in close communication with those of the stomach, which appears most commonly to be secondarily invaded. The practical worth of these findings is emphasized by my recent observations upon 2,100 instances of pyloric spasm in individuals below the age of 31. It was shown that in such cases where the affection had existed for less than two years, with clinical manifestations closely simulating those of gastric ulcer, the disease was located, chiefly, in the appendix or the gall-bladder. Only one out of eleven instances proved to have concomitant gastric ulcer. When the pyloric irritation had existed for from two to three years, hypersecretion and hyperperistalsis were noted in rather more than 60 per cent of instances. When the affection had existed for an average time of six years, instead of gastric ulcer being noted in only one out of eleven cases, it was proved to be associated with disease of the appendix or gall-bladder in approximately 66 per cent of instances. It would seem, therefore, that, if the local focus of infection existing in the appendix or gall-bladder is early removed, the possibilities for the subsequent development of gastric ulcer or even gastric cancer are far less than if such were left unoperated upon. In these bacteriological studies, clinically interpreted, it would seem that we have an extremely important prophylactic indication with respect to ulcer and cancer of the stomach.

In the field of experimental serology a significant contribution has been made by Bolton. This investigator has produced typical gastric ulcers in animals by the intra-abdominal injection of a so-called "gastrotoxic" serum. He has shown that if cells from the mucous membrane of the stomach are repeatedly injected into an animal, of the same or another species, in the recipient animal there is developed a serum, which, when injected into the peritoneal sac or the veins of the animals from whence the gastric cells came, produces both acute and chronic peptic ulcers. These are strikingly similar to such commonly met with in humans, clinically. The practical worth of this investigation appears to suggest that bacteria in the gastric wall are not necessary in the production of ulcers in affected indi-



viduals—these lesions may be a result of bacterial infection anywhere in the body, when elements capable of producing injury or death of tissue in the stomach coexist. The bacteria actually found in such ulcers, or in regions adjacent to them, may have been secondarily deposited there following tissue necrosis. Some ulcers correspond closely to those observed in laboratory animals dying as the result of anaphylaxis, especially anaphylaxis established by injections of proteid.

C. *Pathological*.—To the clinician the most significant advance that has been made toward a better understanding of gastro-intestinal ailments, is comprised in the studies of the surgical pathologist. This special branch of pathology can be claimed as distinctly American and decidedly of the twentieth century. As the result of more general knowledge of the usefulness of exploratory laparotomy, the surgical pathologist has contributed many prime facts to our interpretation of the symptoms of disease associated with lesions, both gastric and extragastric.

The study of surgical pathology permits an observation of life-processes, both gross and microscopic, as they *actually* exist. One can watch diseased tissue *progress* "to somatic death." This differs from post-mortem or dead-house pathology, where disintegrated tissue *only* is seen, and one is left to speculate upon what may have gone before. Today, as a result of the rapid development of surgical pathology as a specialty by a few men (well in advance of their time), microscopic diagnosis of tissue enjoys a refinement undreamed of a few years ago. Picture the pathologist of today *at the operating-table (not the post-mortem slab)* at the side of the surgeon, suggesting, explaining, advising, and seeing pathology in all the wonder of its living bloom. Is it a suspicious gland, the edge of an ulcer, a scar or a tumor that needs elucidation? If so, a minute bit is carefully selected, frozen with carbon-dioxide gas, sectioned rapidly by an ingenious microtome, stained or examined in salt solution, searched microscopically by any desired power, and, in three minutes at the outside, *a fact, not a guess or a vague opinion*, is returned for the better guidance of the operating surgeon.

Working along these accurate lines, the surgical pathologist has shown the clinician his lamentable weakness in the early diagnosis of gastric cancer. MacCarty has demonstrated that of 280 resected, chronic, calloused gastric ulcers, in which there was no clinical or gross surgical

hint of malignancy, 63 per cent showed evidences of atypical or undifferentiated cells in their overhanging edges. These atypical cells are every whit as potent for death of the host as is the gross tumor, which succeeds them and which is too often awaited before final, positive, clinical diagnosis of gastric malignancy is made. Moreover, of 153 cases of undoubted gastric cancers, according to Wilson and MacCarty, 71 per cent presented gross and microscopic evidences of previous gastric ulcer. In some instances, MacCarty noted, in the same specimen, the presence of erosions, simple, calloused ulcers, and ulcera carcinomatosa, suggesting the possibilities of consecutive transition from one form to the other. That this method of diagnosis requires specific training has been emphasized by MacCarty. He has repeatedly called attention to the difficulty of always differentiating between simple hyperplasia and malignant hyperplasia. He suggests that hyperplasia is a forerunner of malignancy, that hyperplasia varies in degree, that cancer is malignant hyperplasia, which also varies in degree, and that some degrees of both processes are indistinguishable, histologically.

To the surgical pathologist, we also owe our conception of the perigastric lymph-gland invasion in gastric cancer. It has been shown that time-duration of symptoms of the disease bears no apparent relation to the size and the extent of involvement of the lymph-nodes, but that the operative and subsequent mortality are in direct proportion to the amount of involvement of these lymph-nodes. Surgically, it has been demonstrated, also, that the size of the gastric growth bears little relation to the extent of perigastric lymph-gland invasion. A small nodule, easily removable, may consequently be operatively hopeless as result of distant lymph-gland metastases.

Clinically, the significance of gastric ulcer of the chronic type, with respect to gastric cancer, is still under discussion. While internists with meager operating-room observation and still fewer facts, claim that a comparatively small proportion of calloused gastric ulcers ultimately become cancers, the admission that such ulcers do at times act as forerunners of cancer, creates, at once, a diagnostic and prognostic problem. In 1882 Zenker stated that, in his belief, all gastric cancers originated from previous ulcers. Seven years later Rosenheim supported Zenker's observation. In 1902 Fütterer, after extensive experimental researches, advanced the opinion that gastric cancer develops with great frequency from pyloric ulcer, but that such transformation



is less common where the ulcers are located in other parts of the stomach. Fenwick, from an apparently limited pathologic and operating-room experience, claims that but 3 per cent of ulcers become cancerous. Friedenwald, from a recent study, would place the frequency of cancers having originated upon previous ulcers at 7.3 per cent. Moynihan claims that fully 66 per cent of his cancer cases had chronic gastric ulcer previously. Sapeska, after a careful review of 100 cases of gastric cancer, could find but ten cases where previous calloused ulcer had not apparently existed.

In 1913 I made an extensive study of 556 operatively and pathologically demonstrated cases of gastric cancer in my service at the Mayo Clinic. My investigations indicated that the sex ratio in gastric cancer is approximately that of chronic gastric ulcer, namely, 2.3 males to 1 female. Pre-cancerous history showed that 41.8 per cent of proved cases of gastric cancer presented early symptomatology that we universally ascribe, clinically, as meaning chronic gastric ulcer; 18.7 per cent showed early symptomatology of "irregular" gastric ulcer, and but 32.1 per cent of the cases had the symptom-complex of gastric cancer without history of previous gastric malfunction. Thus, in more than 60 per cent of the cases, the patients had previous dyspeptic history, and this history was mainly that which we commonly call peptic ulcer. The duration of all symptoms of the "primary" cancer group (182 cases) averaged 7.1 months. The average length of time of the pre-cancerous dyspeptic period of 239 cases was 11.4 years. In this group the duration of the supervening period of evident malignancy averaged 6.1 months. Development of the pre-cancerous history permits patients coming to laparotomy at a stage when in more than one-half of the cases, surgical advantages of a more or less localized process are available. In about one-fifth of the cases of so-called "primary" gastric cancer, laparotomy revealed ulcera carcinomatosa, not infrequently favorable to operative treatment. In 81 per cent of the cases in which prolonged dyspepsia had preceded cancer, periodicity was absent when the process became malignant. Periodicity was noted in but 4 per cent of 182 cases of "primary" cancer. Melena or hematemesis was noted in 17.1 per cent of all cases. Of the group styled "malignancy following ulcer," hemorrhage occurred in 62.9 per cent; in the "irregular" ulcer group, in 19.5 per cent; and in the "primary" cancer group, in 16.5 per cent. Of the patients bleeding within

two years of their coming under observation, more than 75 per cent fell in the "ulcer-before-cancer" classification.

D. *Experimental Surgery.*—In the domain of *experimental surgery*, advances of major importance have been made by Whipple and Bernheim, Bunting and Jones, Draper and Lynch, and others, with respect to the mechanism and the effects of intestinal obstruction and of ileus. The facts derived from these investigations do much to elucidate the numerous types of death that occur following abdominal operations. It has been shown that duodenal obstruction or ileus results in death within sixty hours following its occurrence, whereas excision of the duodenum fails to produce fatal consequences. Drainage of the obstructed loop results in prompt recovery. The cause of death in these high-loop obstructions or paralyzes has been demonstrated to exist in a toxic product in the loop's lumen. This agent appears to have specific paralyzing effects upon the splanchnics supplying the small gut, particularly the duodenum. If this toxic material is introduced into normal animals it kills rapidly, bringing about low blood-pressure, increased temperature, excretion of large amounts of fluid into the intestinal canal, and fatal shock. This toxic reaction is apparently specific, and results in a reaction of anaphylactic type. The toxic agent does not have the characteristics of either an enzyme or an autolysate. Low intestinal obstructions or closed loops contain such toxic material, either in small amount or in lessened potency. As a consequence death in experimental animals with such loops, comes on slowly. This parallels our clinical observation of the manner in which gradual obstruction of the distal small bowel brings about fatal termination.

The mechanical features closely concerned with the production of gastric ulcers have been emphasized by the recent work upon dogs by Hamburger and Friedman. These investigators have succeeded in causing both acute and chronic gastric ulcers by the production of chronic pyloric spasm and pyloric obstruction. Associated with the ulcers, have been found conditions closely simulating those found in the human where peptic ulcer exists,—namely, hyperacidity, hypersecretion, hyperperistalsis, inanition, gastric tetany, and death. These experiments are of particular significance when it is recalled that pyloric spasm associated with disease of the appendix and the gall-bladder, quite commonly precedes the actual clinical manifestations of chronic gastric ulcer in the human.

Interesting experimental work connected with the demonstration of the mechanical features concerned with chronic intestinal stasis has been performed by Coffey, Houget, Horsley, and Draper. In many instances explanations of some of the phenomena popularized by Lane have been brought forward; but it cannot be said that mechanical abnormalities of the colon *alone*, are responsible for the heterogeneous group of clinical symptoms which Lane ascribes to stasis of the contents of the large intestine. Much remains to be proved by both Lane and by the experimental surgeon.

E. *Clinical*.—The past decade especially has taught much regarding the clinical manifestations of disease of the alimentary tract. This information has been achieved largely as a result of team-play possible between surgeon, internist, and laboratory worker.

Time does not permit of more than casual mention of the brilliant work of Bass and Johns with respect to mouth-infections, the pioneer studies of Mixter and Plummer upon lesions of the esophagus, the suggestive observations of Rehfuess concerning fractional estimations of gastric acidity, the biochemic analyses of duodenal contents by Wohlgemuth, Fuld, and Crohn, and the demonstration of the prevalence in the North-west of protozoic colitis by Sistrunk.

During the past five years there has been a gradual revision of the significance which can be attached to test-meal findings in patients with gastric symptoms. Previous to this time the inconstant returns from the functional examinations of patients apparently affected with similar lesions, symptomatically, had tended to bring the method into disrepute. This applied particularly with respect to the diagnostic worth of estimations of gastric acidity. This attitude had been brought about largely as a result of surgical teachings. The confusion had arisen chiefly because it was not until recently shown just what effect upon gastric physiology extragastric disease had. Consequently, the test-meal findings in disease extrinsic to the stomach, but associated with gastric manifestations, clinically, were interpreted in the light of known or supposedly known, primary gastric ailments. While we have been compelled to revise some of our previously held opinions regarding the diagnostic worth of acid estimations of gastric extracts, yet these, when considered as a part of evidence making for proper conception of disease, can in no wise be neglected.

From the personal analysis of more than 7,000 gastric extracts, my studies appear to demonstrate that in *intrinsic gastric disease* the highest gastric acidities are uniformly determined in acute and sub-acute perforating ulcer of the stomach; that in benign chronic gastritis the test-meal picture closely resembles that of ulcer carcinomatosum or that of benign gastric ulcer where recent hemorrhage has occurred; that only about 54 per cent of cases of gastric cancer are associated with the absence of free hydrochloric acid; that in 45 per cent of instances of gastric cancer the acidity returns may be readily confused with those of benign gastric ulcer, chronic gastritis, or achylia gastrica unless the figures are rigidly interpreted in the light of clinical history and physical examination; that in gastric ulcer *with retention* there is an increase in both free and total acidity, which observation is in sharp contrast to instances of retention developing in malignant disease. In the latter event, as retention comes on, free hydrochloric acidity is progressively lowered, while total acidity correspondingly increases. Other things being equal, in a given case of peptic ulcer, the diminution of free hydrochloric acidity associated with an increase in total acidity, the development of obstruction, and the presence of organic acids, speaks for malignancy.

The acidity estimations of test-meals in cases where the gastric complaint is *secondary to disease outside the stomach*,—for example, duodenal ulcer, cholecystitis, cholelithiasis, appendicitis and colitis,—frequently offer confusing variations. This very fact of variation in repeated examinations is not without diagnostic significance. Organic lesions of the stomach itself are usually associated with certain constants in their test-meal returns. Of the test-meal returns from cases where the lesions are extragastric, we would emphasize the facts that the highest figures for free hydrochloric acid are present in cases of pyloric spasm associated with subacute cholecystitis, appendicitis, and duodenitis. These figures closely resemble those returned in gastric ulcer, as does also the history, with the exception of the incidence of hemorrhage, the chemical proof of bleeding, and the time factor. The onset of gastric stasis in duodenal ulcer increases combined acidity at the expense of free hydrochloric acidity. After gastro-enterostomy for non-malignant stenosis, there is an average decrease of 17.0 free hydrochloric acidity, with noticeable and permanent diminution, quantitatively, in total

acidity. This cannot be explained wholly on the theory that succus entericus has been regurgitated.

The demonstration of blood in the gastric contents by chemical tests apparently bears no constant relation to any intragastric disease apart from cancer. In this malady, benzidin or guaiac tests for blood were positive in nearly 80 per cent of instances. Occult blood was demonstrated approximately as frequently in the gastric extracts from instances of duodenal ulcer as from those of gastric ulcer.

#### THE INCIDENCE AND SIGNIFICANCE OF ORGANIC ACIDS IN GASTRIC EXTRACTS

These are rarely demonstrated in non-retention cases, either malignant or benign. In malignant gastric disease associated with partial stenosis or gastric dilatation, lactic acid is present in approximately 54 per cent of instances. It is rarely present when free HCl rises as high as 15; and, in 92 per cent of cases where lactic acid is found, extensive growths, usually inoperable, are present. Only 3 per cent of non-malignant achylas are associated with lactic acid. In less than 7 per cent of non-malignant retention cases do we find organic acids in the test-meal. It is found in less than .5 of 1 per cent of instances of ptosis with atony.

#### THE SIGNIFICANCE OF THE DEMONSTRATION OF SPECIFIC FERMENTS IN GASTRIC CONTENTS

Much excellent work has been done along these lines by Neubauer, Fischer, Panton and Tidy, Jacque and Woodyatt, Hamburger, and Schryver and Singer. Time does not permit of my going into detail respecting the incidence and diagnostic worth of proving the absence or presence of pepsin and rennin in gastric extracts. It would appear that proteolysis is closely associated with the presence of free HCl so long as the acid concentration is below 0.4 per cent, and that milk-curdling ferment follows similar laws. In malignancy, peptolysis appears to be increased at the expense of proteolysis.

We have made observations upon 827 instances of gastric disease for the detection of specific ereptases in gastric juice, in the hope of recognizing early gastric cancer or malignant ulcer. We have employed the *formaldehyde titration method* as suggested by Sorenson and Schiff. In our experience, which is apparently the most extensive recorded along these lines, the average formol titration index in 87 cases of proved gastric cancer was 22.3; the average index in 42

cases of ulcer carcinomatosum, 19.8; the average index in 90 cases of duodenal ulcer, 12.4; of 57 cases of benign gastric ulcer, 11.6; of 52 instances of benign achylia, 14.1; of 19 cases of pernicious anemia, 14.5; and 7 cases of cancer of the liver, 4.25. From these observations it would appear that the estimation of the ereptic power of gastric juice towards peptone solutions is of distinct value in the recognition of malignancy, if the returns are interpreted in the light of clinical history and symptomatology.

We have examined 108 cases for proteolytic ferments by the *edestin test*, as suggested by Fuld and Levison. The results appear to show that in early gastric cancer associated with low free HCl there is *high* peptolysis and *low* proteolysis. In *benign* gastric ulcer *both* peptolysis and proteolysis are *low*.

We have already mentioned elsewhere our experience with the *glycyltryptophan test* as a diagnostic aid toward the recognition of gastric cancer. We made more than 1,600 observations. There were 186 proved instances of gastric carcinoma. The test was positive in rather more than 40 per cent of cases. While gastric abnormalities other than cancer not infrequently returned positive *glycyltryptophan tests*, in no class of disease of the stomach was the test so frequently obtained as in cancer.

The *Wolff-Junghans* test for soluble albumin in gastric extracts proved of more than experimental worth in the recognition of malignancy. We tested 747 cases where there was low or absent free HCl, quantitatively, by Wolff's method. In the malignant group the test was positive in nearly 86 per cent of instances. It was often of distinct service in the differentiation of malignant and benign achylas, or achylas associated with extragastric pathology.

#### THE SIGNIFICANCE OF THE MICROSCOPIC EXAMINATION OF UNFILTERED GASTRIC EXTRACTS

I have made, personally, 6,283 microscopic examinations, using the high power, by the *agar differential staining technic*, which I suggested some four years ago. In brief, the summary of my work is as follows:

*Starch* digestion is by no means a constant index of the acidity of the stomach juice. Diastatic action of saliva appears to depend as much upon motor conditions as upon secretory. *Microscopic remnants* of a motor-meal have no diagnostic significance other than that indicated when found in association with food macroscopically.



Concerning the diagnostic *significance of microorganisms* in gastric extracts, we are prepared to offer four microscopic pictures which appear to have clinical value. Apart from these we can summarize nothing very significant. Certainly, high gastric acidity by no means insures bacteriologic cleanliness,—a fact which carries with it a surgical caution.

*Complex I. That of benign retention, usually gastric or duodenal ulcer.*—In 89 per cent of cases of this type the presence of great numbers of actively budding yeasts, associated with large and small sarcinæ and bacilli, apparently of the colon group, and food bits were demonstrated. The gastric acidity was commonly above 40.

*Complex II. That of Gastric Cancer.*—In 93.8 per cent of all our proved, advanced instances of malignancy, organisms of the *Oppler-Boas* group, associated with food-retention and free acid averaging lower than 15, was a characteristic picture. In but 30 per cent were budding yeasts concomitant, and in only 9.4 per cent were sarcinæ present. There is no characteristic microscopic picture of early gastric cancer other than that associated with peptic ulcer of the retention type. In less than 1 per cent of our cases of malignancy were we able to demonstrate so-called "cancer-cells." These occurred *only* in late cases where the cardiac orifice or the fundus were involved by sloughing growths.

*Complex III. That of achylia gastrica.*—In this disease, so long as motility is not interfered with, microscopically, there are found in the gastric extracts long chains of streptococci resembling beads of a rosary, groups of large, deeply staining staphylococci, and a peculiar, short, fat, acid-fast rod or cocco-bacillus that grows in short chains, pairs or singly.

*Complex IV.*—When perforation into an adjacent viscus has taken place in malignant ulcer or primary cancer, or where obstruction has occurred below the duodenum, the picture of immense numbers of thick cocco-bacilli, with or without spirilla or streptococci, in association with low acidity, retarded food-progress and putrefaction, as evidenced by the odor, is shown in more than 94 per cent of instances.

#### CLINICAL APPLICATION OF THE RÖNTGEN RAY

In no other branch of internal medicine has the x-ray been more assiduously employed than in the solution of ailments of the alimentary tract. There has been a bewildering multiplication of mechanical devices, thoroughly popularized by

commercial enterprise. With the aid of this diagnostic procedure, certain facts of clinical worth have been determined, but in the enthusiasm over the novelty and perfection of the various forms of apparatus, it has been almost forgotten that facts of equal worth, diagnostically, could have been learned from more generally applicable and far less expensive modes of examination. In many instances the negative Röntgen examinations have proved of greater significance than have those classed as positive.

*Lesions of the esophagus* (diverticula, strictures, fistulæ, cardiospasm) are among those in which the x-ray has yielded facts of prime value. While the clinical suspicion, or even certainty, that such ailments exist is generally well established, no one can deny that the ocular proof of the presence of these lesions, together with approximate demonstration of their extent, forms a not-to-be-neglected part in rounding out examination data. If Röntgen studies are supplemented by the use of obstructing sounds of the type devised by Bassler, Meyer, or Schutze, such observations carry both diagnostic and prognostic weight.

*Gross Lesions of the Stomach.*—The well-established forms of *cancer* are quite readily proved to exist by Röntgen examinations. When the disease has progressed sufficiently to permit of its recognition by the x-ray, other well-marked clinical signs and symptoms are commonly not lacking. There is no Röntgen diagnosis of early gastric cancer,—that is, "early" in the sense of detecting malignancy at a stage when it is possible to uniformly effect its complete excision,—beyond the demonstration of certain types of chronic, calloused ulcer whose size or situation—thanks to the studies of the surgical pathologist—leads to a suspicion that malignant transition is to be expected.

In the recent examination of 127 cases of operatively and pathologically demonstrated cancer of the stomach, in which the Röntgen findings were "positive," "probable," or "possible" for malignancy in rather more than 92 per cent of instances, the disease had advanced to such a stage that bacilli of the *Oppler-Boas* type were demonstrated in the gastric extracts in 93.8 per cent; the formol index was above 22 in 88 per cent; the Wolff-Junghans test was positive in 82 per cent; abdominal tumor or ridge was palpable in 78 per cent; persistent gastric stagnation of the physiologic motor-meal was present in 74 per cent; in nearly 82 per cent

free HCl was below 8; and in nearly 95 per cent the clinical history was that of malignancy.

In gastric cancer the chief value of Röntgen studies, apart from their undeniable psychic worth to patients, lies in the proof of malignancy in physically inaccessible portions of the viscus (cardia, fundus, posterior wall, or high on the lesser curvature), the demonstration of the extent of gastric involvement, the rough estimation of the mobility of the neoplasm, and the proof of the patency or obstruction of the gastric orifices or the stoma of a gastro-enterostomy.

In *gastric ulcers* of the uncomplicated type, that is, without extensive callus-formation, stenosis, perforation, etc., Röntgen examinations return few facts of absolute diagnostic value. When taken into consideration with other laboratory and clinical data, such examinations frequently lead to the added suspicion that ulcer exists, but the final word in the diagnosis must be awaited from the surgeon who performs laparotomy.

Where complicated calloused ulcers are present, such may be visualized in approximately two out of four cases. The more or less definite localization of ulcers by the x-ray technic often carries with it a useful hint with respect to operative intervention or a prognostic significance with regard to the possibility of a future neoplasm. Of course these facts are not rarely as equally well determined by other types of examination at the hands of an experienced clinician.

*Duodenal ulcer* of the uncomplicated type presents no characteristic Röntgen picture. When complications have supervened as a consequence

of the development of much scar-tissue or the result of chronic perforation, deformity of the duodenal contour, fixation, stenoses, and peristaltic abnormalities are detected in rather more than two out of three cases. These objective findings are demonstrable, it would seem, with especial clearness when the data from clinical history and physical and laboratory examinations are borne in mind at the time the x-ray study is being made.

*Lesions of the small and large bowels* are particularly suited to diagnosis by the Röntgen method on account of the relative physical inaccessibility of such viscera. In the elucidation of ailments of these parts the x-ray is a procedure *par excellence*. Obstructing tumors, fistulae, diverticula, anomalies of position, congenital malformations, kinks, twists, adhesions, and foreign bodies are both recognized plainly and located fairly accurately by the screen or plate studies. When it is recalled that this group of ailments has hitherto composed a set of troubles where laparotomy was generally in the nature of exploration, it can be appreciated how valuable a diagnostic maneuver Röntgen examination has placed at our command.

*Gall-stones* of a certain density can be demonstrated Röntgenographically in from 5 to 10 per cent of instances by an expert. In the majority of cases where the x-ray reveals the presence of stones, the clinical history is positive for such. There are many times more cases of cholelithiasis diagnosed by careful history-taking and physical examination than even the most enthusiastic actinologist lays claim to demonstrating by the most refined Röntgen technic.

## EXOPHTHALMIC GOITER, WITH REPORT OF A CASE\*

By F. M. CRAIN, M. D.

REDFIELD, S. D.

Preliminary to reporting a case of exophthalmic goiter that has been under my observation for over two years, the sequel of which presents something out of the ordinary, I shall briefly direct your attention to our present knowledge of the history, etiology, and treatment of this interesting and somewhat baffling disease.

Perry, in 1825, was the first to describe a

disease whose clinical features correspond to what is now known as exophthalmic goiter, or Graves' disease. His publication was followed by Graves, who, in 1835, published his article on this disease, and was the first author to emphasize the fact that the cardiac symptoms so prominent were symptomatic, and not associated with valvular or other organic changes.

In 1840 von Basedow, a German physician, gave the most elaborate description of exophthalmic goiter, and gave it the name of *exophthalmic*

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*cachexia*, hence the multiplicity of names by which this disease is known.

We need not go back far in medical history to find the prevailing opinion of physiologists, regarding the function of the thyroid gland, that it played no important part in the life and health of an individual. While today we are far from a satisfactory knowledge of the precise function of the thyroid gland, yet all agree it does play an important part in the economy of nature.

In studying the functions of the ductless glands, we are handicapped by inability to secure secretions for chemical and physiological examination.

In case of congenital absence of the thyroid gland, or as a result of its removal, or any pathological condition that renders it functionless, we have a condition known as *myxedema*. Closely allied to myxedema is that interesting pathological condition known as *cretinism*. We now know that these conditions are due, wholly or in part, to hypothyroidism, or insufficient thyroid secretion. This knowledge paved the way for a rational treatment for the relief of these conditions by artificially supplying the system with those substances which the thyroid gland failed to supply.

It is quite a different clinical picture when we study the opposite condition known as *hyperthyroidism*. In this condition we have the system overcharged with thyroid secretion. This is made manifest by increased blood supply, dilatation of the blood-vessels, and hypertrophy of the gland, the latter due probably to the increased functioning. These conditions accompany, or are closely followed by tachycardia, exophthalmos, muscular tremor, and other symptoms that make up the symptom complex of exophthalmic goiter.

Nothing is more convincing than that this train of symptoms is due to overcharging the system with thyroid secretion. If we administer any of the thyroid-gland preparations to a patient suffering with exophthalmic goiter, the symptoms will immediately increase. Symptomatic goiter can be produced by feeding a healthy person thyroid glands. Death has been known to have resulted from administering thyroid gland, or some of its preparations, to a patient already carrying a maximum load of thyroid toxins. I make use of the word *toxins*, for it expresses as no other word can express, the condition of the patient suffering from hyperthyroidism.

The function, therefore, of the thyroid is to prepare a secretion that is essential to the growth and health of the individual. Just what this secretion is,—its chemical qualities and its physiological action,—has not yet been determined.

I quote from a recent article by Beebe of New York, who says: "This substance (the active principle of thyroid secretion) probably is protein in character and contains iodine in chemical combination." "The active substance probably forms a large portion of the colloid stored in the alveoli of the gland and its physiologic activity is proportioned roughly to the iodine contents."

You observe, he does not speak with confidence, but makes use of the verb *probably* twice in this short quotation. This protein substance has much to do in maintaining the health of the individual; and, when supplied in a normal amount, it acts strictly in a physiological way, but when in amount in excess of physiological requirement, it produces a train of symptoms for which the toxic theory alone offers the most reasonable explanation. The toxic effect of hypersecretion of the thyroid gland, affecting as it does the nerve-centers and producing a train of symptoms in which the nervous system is profoundly affected, has given rise to the theory of the nervous origin of exophthalmic goiter.

This disease is more common in women than in men, and more frequent in young adults than later in life. It occurs more often in families of a neurotic history. It frequently follows nervous strain, mental excitement, or excessive physical exertion. Strong emotions may be the exciting factor that brings forth the distressing symptoms of Graves' disease. Whatever may be the primary or exciting cause, an enlargement of the thyroid gland, and a perversion of its physiological function, is the basis of exophthalmic goiter.

The symptoms, when once fully established, make the diagnosis absolutely certain. The presence of the disease before the symptoms become prominent, is no doubt often overlooked; and the advantages of an early diagnosis and correspondingly early and more effectual treatment, are lost. In every case where a rapid pulse cannot be accounted for, and before any of the other cardinal symptoms are prominent, it is wise to hold the diagnosis for further observation. It is remarkable with what suddenness all the prominent symptoms may develop.

The first symptom usually complained of is a rapid pulse while at rest, and greatly exaggerated by moderate exercise, fear, or emotional ex-



citement, the pulse often running as high as 160 to 200 per minute. The cardiac impulse against the chest-wall is strong, and is often observed through several thicknesses of clothing. The heart-sounds are not infrequently audible, not only to the friends, but to the patient also. This distressing symptom aggravates the nervous condition of the patient. Abnormal heart-sounds of various kinds and degrees sooner or later develop. Acute dilatation of the heart accompanied by dyspnea, cyanosis, and local or general edema may follow. The tachycardia and dyspnea that accompany it may be entirely out of proportion to the enlarged thyroid.

Next to the heart in importance is the exophthalmos. The degree of protrusion of the eyeballs varies greatly, from a slight staring appearance to a degree that renders the lids incapable of covering the ball when an attempt to close the eye is made. The patient sleeps with the eyes open, thus exposing the cornea to injury from foreign objects.

The enlargement of the thyroid gland may be unilateral only; and when confined to one side it is usually the right lobe that is involved. The enlargement of the thyroid never reaches the size that we usually see in the simple goiters. The blood-vessels to and from the gland are enlarged, thus increasing the vascularity of the gland. The hypertrophy of the gland is no doubt due to hyperfunctioning. Systolic murmurs are frequently heard. As heretofore stated, the gravity of the symptoms does not correspond to the degree of enlargement. A small goiter may be associated with the most active and grave form of this disease.

The nervous system suffers severely. The symptoms are usually late in developing, and consist of a general nervous instability, muscular tremor affecting the flexors and extensors of the wrist. Occasionally we have localized muscular atrophy. There are excessive sweating, and increased secretion of urine, which may contain albumin. Gastro-intestinal disturbances, such as vomiting and troublesome diarrhea, often exist.

In view of the multiplicity of symptoms, it is not surprising that we find the mental conditions somewhat unstable. This instability may take the form of hysteria, melancholia, or even the graver forms of mental aberration.

The prognosis, if the disease is early recognized and properly treated, is good. From 70 to 90 per cent treated medicinally are cured or greatly improved. The treatment is both medical and surgical. The medical treatment con-

sists of the employment of those remedies that tend to build up and maintain the maximum degree of health. Quinine and hydrobromides, in connection with ergot, are favorite remedies, many cases responding favorably to their use. Digitalis, strophanthus, and bromides regulate the heart-action, and allay the excitability of the nervous system. The psychic influence is an important factor in handling the neurotic type of this disease.

I have employed in a most obstinate and aggravated case, where other remedies failed, desiccated suprarenal gland in two-grain doses. The relief I obtained from the administration of this remedy was gratifying in the extreme. Rest, wholesome diet, and proper exercise are therapeutic agencies that are essential in handling these cases.

The serum treatment of Rogers and Beebe have been productive of good results. Beebe reports the treatment of 3,000 cases by the serum treatment with 50 per cent cured and 30 per cent improved.

The surgical treatment consists of—

1. Ligation of the blood-vessels, thus limiting the blood supply to the glands.
2. Division of the nerves supplying the glands.
3. Total or partial removal of the gland.

The surgical treatment above outlined has been followed with various degrees of success; but, as the operation on the thyroid glands, especially in advanced and exaggerated cases of exophthalmic goiter, is fraught with great danger, the operation should be performed only by those who have had experience, and with the most favorable environment.

Since the surgical treatment of exophthalmic goiter is to be discussed by one whose experience has qualified him to speak with authority, I have made but brief reference to the surgical treatment.

The case I desire to report is that of a lady, aged fifty-six, wife of a retired minister, a lady of exceptional intellectual attainments, a graduate of a college of arts and science. She is the mother of three children, two of whom are living and in good health, one dying in infancy. The patient's father died in Libby prison. Her mother is living at eighty-five years of age, and is in poor health due to senile changes, aggravated by chronic bronchitis, which has troubled her most of the time since early womanhood.

The patient was in rather poor health during her developing age, but was able to pursue her college course; at the same time she taught school,

and assisted her widowed mother. At this time both the patient and her mother were supposed to be suffering from tuberculosis. The patient never took on much flesh, and always had the appearance of being in poor health, yet for over thirty years after her marriage she did not have a physician prescribe for her. Her menstrual epoch commenced at the age of fifteen years, and continued to the age of fifty-two without anything unusual during the time.

I was called to attend her the forepart of September, 1913. She was then suffering from neuritis of a neuralgic type, affecting her left shoulder and arm. At times the pain was almost unbearable. Opiates were poorly borne; besides, she objected to the use of them. Hot applications gave but slight relief. She had no fever; the bowels were regular; kidneys, active; heart-action, accelerated; otherwise she was normal. At this time there was no noticeable enlargement of the thyroid gland, but she had the appearance of a slight exophthalmos.

After a couple of weeks of the usual treatment, during which time she obtained but little relief, she was taken to a sanatorium, where she obtained some relief, largely due to better care and the psychic influence of the surroundings. After eleven days' treatment in the sanatorium she returned to her home greatly emaciated and very weak, yet relieved somewhat of the severe pain.

About three weeks after her return from the sanatorium I was again called to attend her. I found her unable to walk, and greatly emaciated. The exophthalmos became more prominent. The thyroid gland was slightly enlarged. Tachycardia, moderate; nervous symptoms, not well developed; heart-beat, 120 to 150 per minute; appetite, poor; kidneys, inactive; slight traces of albumin; and few casts in urine.

On December 30 fire was discovered in the basement of their home, and had made considerable progress before it was discovered. She was carried from the house to the neighbors, where she was cared for until a new home could be provided. At the time of the fire she was calm, and did not suffer from the excitement. A few days later all the symptoms of exophthalmic goiter became greatly exaggerated. The thyroid enlarged rapidly; both lobes were involved, the right about twice the size of the left. Tachycardia became most troublesome. The pulse exceeded 200 per minute, and was so irregular it was difficult to count the beats. The exophthalmos was so prominent that it would seem that the

eyeballs would drop from their sockets. It was impossible for her to close her eyes, and she slept with them open. Muscular tremor became troublesome, and there was extreme exhaustion. Temperature did not exceed 100. No chills.

She became comatose, and was unable to take medicine by the mouth. Edema, first of the lower extremities, rapidly extended to the abdomen, pressed upon the diaphragm, embarrassed respiration, and added to the cardiac symptoms. The right lung became edematous, the pressure being so great that respiration ceased, and dullness existed over the entire right chest. Both arms from the tips of the fingers to the shoulders were as full as the skin would hold. Even the face was involved in edematous swelling. Only the left lung and thorax were free from edema. Troublesome bed-sores on the hips, shoulders, and elbows added to the discomfort of the patient, and the anxiety of the nurse.

For over two weeks dissolution was momentarily expected. All medication except by hypodermic methods was abandoned. Nourishment by rectal feeding was employed.

Heart tonics consisting of strychnine, digitalis, and nitroglycerin, were pushed to the limit. Much to our surprise, after a few days of watchful waiting, we were able to notice a slight improvement in the action of the heart. In a few days she was able to take a little nourishment by the mouth.

Having exhausted, up to this time, the usual remedies for exophthalmic goiter, I began the administration of two-grain doses of desiccated suprarenal glands. This treatment was supplemented by tonics. For several days after medication by the mouth was resumed, we continued hypodermic methods in giving the heart remedies.

Under the suprarenal medication a marked reduction of all the distressing symptoms occurred. The edema slowly disappeared in the reverse order in which it occurred. There was a marked reduction in the size of the thyroid gland. The patient's mental condition began to improve. Her appetite was better, and her strength very slowly returned; but for over a year she was unable to regain sufficient strength to care for herself.

The thyroid became normal in size. The exophthalmos improved, but did not entirely disappear. The tachycardia disappeared. Her heart-action became normal, except as to rapidity. Muscular tremor passed away, and only a moderate



degree of exophthalmos remains of the cardinal symptoms of this most interesting case.

It is necessary, however, to report several relapses in this case. These relapses usually followed some excitement, unusual exertion or slight accident. For instance, only a short time ago she accidentally fell and bruised her thigh. The injury itself was slight, yet in a few days there was a noticeable enlargement of the right thyroid lobe. Tachycardia, muscular tremor, and weakness followed. As soon as the symptoms became manifest in each relapse she has had, we began the administration of the suprarenal glands, which was followed in every instance by the most gratifying results. She expresses herself as noticing an improvement by the time the third tablet is taken.

The most interesting feature of this case was the failure of the right lung to resume its function after the edema had subsided. There is no air entering the lung. The chest-wall has receded, and dullness extends over the entire right thorax.

Another interesting sequel to this case is, after the edema had left the upper extremities the radial pulse at the right wrist was obliterated.

At the present time the patient expresses herself feeling as well as she ever did, except for being weak. She looks after the home, and does considerable light work.

The promptness with which the cardinal symptoms of exophthalmic goiter disappeared in this case after beginning the suprarenal treatment, has been to me a most gratifying surprise.

#### DISCUSSION

DR. G. S. ADAMS (Yankton): I am sure every one has enjoyed this most excellent paper of Dr. Crain's.

My own personal experience with exophthalmic goiter is rather limited. I have in mind a case of Graves' disease presenting all the symptoms, with the exception of exophthalmos—one of those toxic goiters wherein the patient suffered from extreme tachycardia, diarrhea, tremor, and loss of weight and strength, and made an apparent recovery under medical treatment by complete rest in bed, ice-bag applied locally, and complete mental rest, as well. However, recurrences in these cases of apparent recovery are not uncommon. While there is no doubt in my own mind that many of the early cases of the disease can be treated medically, I am convinced that exophthalmic goiter is a surgical disease from the very beginning, and that our chief hope is in timely operation. The disease should be recognized early, before exophthalmos appears, when operation is comparatively safe. At this time the mortality is something like 0.5 per cent, but operation must be done before the heart is badly affected and before the intoxication is pronounced, for operation in the later stages of the disease is attended with a very high mortality.

There are a few obscure nervous conditions that resemble exophthalmic goiter in their symptomatology, but practically all of these are of slower onset, and are not benefited by the usual medical treatment or by operation.

DR. S. M. HOHF (Yankton): The doctor has described very well the *modus operandi* of adrenalin, in that it constricts the arterial blood supply to the gland. In other words, it produces medically what we attempt to do surgically, namely, to cut off the blood supply. It will be interesting to note the future progress of his case. We hope he will favor us with a later report.

To bring before you the results that may be hoped for surgically, I will cite a case which came under my observation very recently. A man, fifty-nine years of age, with pronounced exophthalmos, presented the following history: About a year ago he came to see me with vague symptoms of exophthalmic goiter, namely, a rapid pulse, nervousness, and slight gastric distress. No exophthalmos at that time was apparent. He remained in the hospital for a short time and under rest and quiet sufficiently improved to return home. During the winter months, however, his symptoms recurred, and last February he visited one of the most noted clinics in this country, and at a time when his symptoms had become so pronounced as to make operative measures prohibitive. He was advised to remain for a few weeks under rest and the usual treatment in that institution, which he refused to do. He returned home, and about two weeks ago again came under my observation. At this time his pulse was over 200 and scarcely to be counted. Nervous agitation was extreme. The exophthalmos was of minor importance. The principal symptoms were the nervous disturbance and tachycardia. He was put to bed for ten days, fed an abundance of water, after which the superior arteries were tied. On the morning of his operation his pulse was 180, very irregular, and the blood-pressure was 200. His condition was such as to make us fear the anesthetic. But, as has already been brought out, we learned by this particular case that there is not so much danger from the anesthetic in exophthalmic goiter as we have been taught to believe. The ether was administered by one well qualified, it is true, but no unpleasant sequelæ whatsoever developed. Twenty-four hours after the operation the pulse had dropped to 150, and the blood-pressure to 170. At the end of forty-eight hours the pulse was 120, and the blood-pressure 160. He was feeling comfortable, so much so that he wanted to sit up.

In the employment of adrenalin we can imagine a temporary constriction of the arteries whereby the toxins developing in the gland, which we now know cause the constitutional disturbances, are inhibited from entering the circulation.

We will predict, however, that Dr. Crain's case will eventually require ligation or removal of the gland. In the case referred to, the gland is not much enlarged, the left lobe slightly more than the right; and the physical findings, as far as the gland itself is concerned, are practically nil. (Applause.)

DR. W. G. BENNER (Willow Lake): There is one feature about hyperthyroidism which has not been touched on, I believe. It has been my misfortune to have had a few cases complicated by pregnancy. I do not know whether to advise immediate operation or not in such cases. It has not been my custom to advise



operation, getting along and meeting the symptoms as best we could. Sometimes these clear up a good deal following labor. I would like to ask the surgeons what is the best disposition of cases of hyperthyroidism complicated by pregnancy?

DR. J. W. SHUMAN (Sioux City, Iowa): Goiter is divided into two classes, the physiological and the pathological. The physiological form has been touched on. The gland that enlarges in eighty per cent of pregnant women, and the gland whose enlargement occurs at or following puberty, especially in young girls, are physiological goiters.

The pathological goiter is divided into two classes:

First, simple goiter, or the goiter that causes disturbance by its simple enlargement, causing cosmetic and pressure disturbances. This form needs no other than surgical treatment.

Second, the other form is the hyperthyroid or the hyperfunctionating gland, the so-called Graves' or Basedow's disease. The treatment of it, however, is both medical and surgical. I would like to illustrate the pathological section of a hyperthyroid gland.

[The speaker illustrated by means of blackboard drawings.]

In the simple gland, there is simply a layer of secreting cells, secreting thyroïdin, these being the acini [indicating on the drawing]; while in the hyperfunctionating gland there is an increase of the secreting or the parenchymatous portion of the gland. Therefore, there is an over amount of thyroïdin thrown out into the circulation, and those symptoms complained of constitute the tripod, tachycardia, tremor, and exophthalmos. The gland itself may or may not be increased in size, because the disease has little or nothing to do with the stroma in between, which has to do with its enlargement. We can easily see that, if those cells increase, an increase in thyroïdin will be thrown out into the circulation without any enlargement of the gland.

Now, taking up the hyperthyroid disease. As has been said, keen perception and keen diagnosis must be employed in handling these cases. Every case that comes to us complaining, we must examine definitely for these symptoms. A fast heart should always cause one to suspect the thyroid gland. We should examine that patient very thoroughly. The patient should of course be stripped; especially should we palpate the gland. By having the patient swallow, we can feel the outline and consistency of the gland. These thyroids are generally very much firmer than the normal glands. The patient will demonstrate the tremor by extending the arms and hands with the fingers stretched out. If a piece of paper be placed across the fingers, a fine tremor will be accentuated. It is not coarse, but is very, very fine. The exophthalmos is not an early sign. Patients with hyperthyroidism are generally emaciated and frequently almost to skin and bone.

Dr. Knott spoke of cases of exophthalmos in which there had been previous infections,—one I think of typhoid fever and another of acute influenza. In nearly all these cases, if one will examine closely, he will find a focus of infection somewhere. Either in the teeth, tonsils, spots in the lungs, or elsewhere, there is generally an infection; and it is rational to link up that infection with that of the thyroiditis, which causes, in the first place, an increase of the secreting cells, which,

in turn, cause a toxemia. The early treatment would entail clearing up the infective focus.

In reference to the gland itself, we are all agreed that surgical treatment is the treatment *par excellence*. If you remove half the gland you destroy fifty per cent of that toxin which intoxicates the patient and causes all of the symptoms which are being complained of. But, oftentimes, you will be confronted with cases wherein you will debate whether to allow the patient to go on the operating-table or not. Hence the reason for such operations as ligation, the injection of boiling water, and so forth, done because the patient cannot stand an operation. You fear the marked intoxication you may give that patient by the manipulation of the gland, etc. These extreme patients should be put to bed and kept quiet for a sufficient time. I think the rest treatment that Dr. Crain employed did more good for his patient than the adrenalin. The patient had gone just as far as she could, and was down and out, and had to rest. There was no moderate exercise as had been employed before. Absolute rest and absolute quiet are what should be given the acutely intoxicated patient. After rest in bed comes elimination, because the patient is intoxicated. We can help eliminate the toxins. The sweat glands should be stimulated, also the urinary tract, and, above all, the intestinal tract should be stimulated to active elimination. Many of the patients thus treated make good recoveries, but, sooner or later, the glandular tissue itself should be lessened in amount by surgical skill.

DR. WILLIAM BLACK (Tyndall): There is one thing in the symptomatology I do not think the doctor mentioned in his paper, which has come under my observation, and that is, in cases of exophthalmic goiter in women and girls you will have pains referable to the right ovarian region.

The case I refer to particularly was one in which the patient, a married woman about twenty-five years of age, complained of pain in the right iliac fossa. She had a pulse in the neighborhood of ninety. She was not my patient at the time. There was no rise of temperature. She was kept under observation, and the pain continued. A diagnosis of chronic appendicitis was made, and the woman was operated on for appendicitis, and a normal appendix was removed. She made a normal convalescence from the operation, but the pain continued. This continued for some time. I first saw her four or five months after she had been operated on, and the pain was still there. At that time her pulse was running from 90 to 100. She was kept under observation, and a diagnosis of exophthalmic goiter was made, followed by ligation, and later by thyroidectomy, and the pain in the right ovarian region disappeared. The diagnosis of exophthalmic goiter was not made because of the ovarian pain, but my attention was called to it because of the fact that it disappeared.

Some time after that I saw also two other cases, both girls, who came with pain in the right iliac fossa. There was no increase of temperature, but there was a slight acceleration of the pulse, and no extreme tenderness, but pain. These two patients were also kept under observation for some time, a diagnosis of exophthalmic goiter made, followed by thyroidectomy and disappearance of the ovarian pain.

I do not know what the connection is, or whether it is just a coincidence with me; but I thought it might

be well in the discussion of this paper, to mention it. (Applause.)

DR. L. L. CORCORAN (Rock Rapids, Iowa): It has been a pleasure to hear the essayist suggest a remedy for emergency use in these cases. I think we all agree that cases of hyperthyroidism should be treated surgically, but we occasionally have patients who either will not consent to surgical interference or are not in condition for it. The action of the secretion of the adrenals and the pituitary body is in so many respects directly opposite to that of the thyroid that, if we concede that the product of the latter gland acts as a toxin in cases of hyperthyroidism, it seems logical to suppose that adrenalin may act as a physiological antidote.

DR. CRAIN (closing the discussion): I have but little to say in closing the discussion on my paper.

I submit, twenty minutes is a short time in which to present the subject of exophthalmic goiter.

The subject, however, is an interesting one, and I am pleased that the paper has been so ably discussed.

Dr. Crile, of Cleveland, places great importance on

the psychic effect in the surgical treatment of these cases.

He takes the position that toxin of hyperthyroidism affects the brain cells in such a way that alarming symptoms and even death may follow surgical treatment.

He has shown in over two hundred minor surgical operations on patients suffering from exophthalmic goiter the mortality rate exceeded fifteen per cent; whereas, the mortality rate had these patients not been suffering from goiter would scarcely have exceeded one per cent. He prefers, when practicable to do so, to place his operative patients in a hospital under the care of a skilled nurse for several days prior to the operation, in order to eliminate, so far as possible, the shock that follows these operations.

Dr. Crile's methods of handling the surgical cases differs somewhat from Dr. Knott's method.

The last speaker spoke of the relationship existing but little. This might be regarded an unexplored field between the ductless glands; on this subject we know in medicine that offers much to future research.

## THE NASAL ACCESSORY SINUSES AS FOCI OF INFECTION\*

BY WILLIAM R. MURRAY, M. D.

MINNEAPOLIS

It is impossible for me, in the short time allotted to a discussion of the above subject, to more than briefly consider the subject of infection of the nasal sinuses. I shall, therefore, omit any reference to the etiology, diagnosis, pathology, and treatment, and confine myself to a discussion of certain definite, as well as indefinite, complications and sequelæ of sinus involvement.

I wish, however, to remind you that there are certain types of sinusitis in which there may be no purulent discharge appearing within the nasal passages; that subjective symptoms may be lacking to direct the attention of the patient or of the physician to the nasal cavities; and that a complication or sequela may be the first symptom of which the patient complains.

These latent forms of sinus involvement are frequently the foci of infection from which direct extension may occur to contiguous parts through necrosis of the bony walls, or toxins are carried to neighboring or distant parts of the body, and, by reducing both the local and general resistance of the patient, favor the onset or development of other infective processes in other parts of the body.

I would also remind you of the extreme anatomical variations in size, structure, and locations of the accessory sinuses, and of their close

proximity to important vital structures and to certain motor, sensory and sympathetic nerves. We are indebted to Zukerkandl, Killian, Onodi, Loeb, Sluder, and others for valuable contributions to our knowledge of these anatomical variations, of the extreme clinical importance of such variations, and for a better understanding and knowledge of the many, and oftentimes obscure, complications and sequelæ that may occur and have their origin in an infective process within the nasal sinuses. Observations on a large number of skulls have not only shown this great variability in structure, which brings these cavities into close relationship with adjacent important structures, but have also shown that, in a considerable proportion of cases, there are dehiscences present in the bony walls of the sinuses which allow the lining membrane of the sinuses to come into contact with the membrane of adjacent structures, such as the dura, sheath of the optic nerve, blood-vessels, and motor and sensory nerves.

This brief reference to anatomical peculiarities is mentioned because it is of great clinical importance to a proper appreciation of the many avenues of infection, physiological and pathological, which may exist in connection with a sinusitis, and because it is frequently this inconstancy in structure and location that gives rise to such a multiplicity of symptoms.

Intracranial infection, as a result of sinusitis.

\*Part of symposium on "Focal Infections," read before the Hennepin County Medical Society, February 1, 1915.



may occur in the following manner: by direct extension through caries and destruction of the sinus wall; by lymph-channels; by vascular extension through the emissary veins. The veins of the frontal sinus anastomose with the longitudinal sinus; veins of the ethmoids empty into the ophthalmic veins, and also anastomose with veins of the dura; and the close relationship of the sphenoid sinus to the cavernous sinus accounts for an occasional cavernous sinus thrombosis following a sphenoiditis.

Onodi, in 1911, collected statistics of 106 cases in which cerebral abscess had occurred as a complication of accessory sinus disease; and in these 106 cases the frontal sinus was involved 82 times, the ethmoids 11, the maxillary 4, and the sphenoid 1. Suppuration in the ethmoids is more likely to cause a meningitis; and sphenoid abscess is more frequently the cause of a thrombosis in the cavernous sinus. Orbital abscess is the most serious complication of a maxillary empyema, as it may extend to the meninges through the optic foramen or through the roof of the orbit. Meningitis, brain abscess, and thrombosis of the cavernous sinus occasionally complicate an ethmoiditis.

Infection occurs through the cribriform plate, or through the ethmoidal veins which anastomose with those of the dura, and empty into the ophthalmic vein and thence into the cavernous sinus. Intracranial complications more frequently follow inflammation of the frontal than of any of the other nasal sinuses, on account of its large area adjacent to the brain and the thinness of the separating walls and the intimate relation between the veins and lymphatics of the sinus and those of the meninges.

Osteomyelitis occasionally occurs as a complication of sinus disease. Of 38 cases collected by Schilling, Gerber, and Luc, 36 originated in the frontal and 2 in the maxillary sinus. Of 48 cases collected by McKenzie, 45 had their origin in the frontal and 3 in the maxillary sinus. Metastasis may occur, though the most frequent complication is direct extension to the meninges and brain.

Ocular complications are frequently present with a sinusitis. The maxillary, anterior ethmoidal, and frontal sinuses are more likely to cause anterior ocular lesions, while the posterior ethmoid and sphenoid are more frequently responsible for the deeper ocular lesions. Conjunctivitis, dacryocystitis, orbital abscess, corneal ulcers, edema of the lids, periostitis, pa-

nophthalmitis, exophthalmus, uveitis, choroiditis, optic neuritis, and paralysis of the 3rd nerve, may be due to sinusitis, while accommodative and muscular asthenopias are frequently the result of an involvement of the anterior or posterior group of sinuses.

Headaches are so frequently caused by sinusitis that they demand a careful examination of the nasal cavities. This is especially so if they are periodic in character or are unilateral in location. While it might be expected that a sinus headache would be located more or less constantly in the region of the affected sinus, this is by no means always the case, as a maxillary sinus headache is occasionally located in the supra-orbital region, and a chronic frontal sinusitis has been known to cause only occipital pain. A sphenoidal headache is frequently located in the occipital or parietal regions, but may be referred to the temporal region, to the mastoid, or to the vertex. Clinically the referred pain of a sphenoiditis presents great variability, due probably to the close association of different cranial nerves that become involved through extension of the inflammatory process or its toxins.

Neuralgias are quite generally present in acute cases of sinus involvement, the pain being referred to the affected cavity or along the course of the branches of the trigeminal nerve. As the trifacial, through its sensory filaments, supplies all the nasal sinuses and its divisions are distributed to the ophthalmic, superior maxillary, inferior maxillary, and occipital regions, neuralgic pains referred to those regions are to be expected. It is the chronic, and especially the latent forms of sinusitis, that are likely to give rise to the chronic periodic type of neuralgia, and it is in these cases, where there may be no symptoms, subjective or objective, to direct attention to the sinuses, that the cause of the neuralgia may be overlooked; and as the intensity of the pain is likely to be influenced by such contributing factors as constipation, prolonged mental work, loss of sleep, indigestible food, stimulants, anemia, etc., through their unfavorable effect upon the diseased sinuses, the true cause of the neuralgia may be assigned to the contributing factors, unless a thorough and careful examination of the sinuses is made.

Sluder has recently shown that in certain anatomical types of sphenoid and posterior ethmoid cells, the affected sinus may come into as close relationship with Meckel's ganglion as it frequently does with the optic nerve, and that



a sphenoiditis, by extension to the sphenopalatine ganglion, may cause a chronic periodic form of neuralgia with symptoms partly motor, sensory, and gustatory. From a study of 60 cases, he has endeavored to formulate a syndrome arising from such disturbances of the sphenopalatine ganglion, and has observed that symptoms of sphenoid or posterior ethmoid diseases have usually preceded the development of the characteristic neuralgic picture, and that the pain may be located at the root of the nose, about the eyes, upper jaw and teeth, extending to the ear and sometimes backward to the occiput and neck, and thence to the shoulder, axilla, arm, and fingers.

Among the complications occurring in the lower respiratory tract, should be mentioned some of the so-called "winter coughs," recurring attacks of bronchitis, and pneumococcic infections, which may be dependent upon a chronic focus of infection within the nasal sinuses. Considerable evidence has been produced to show the importance of lesions in the nasal passages and sinuses in the production of asthma; and it is a clinical fact that certain types of bronchial asthma are due to a sinusitis, and the sinuses most frequently responsible are the ethmoids, and especially the chronic hyperplastic form of ethmoiditis, accompanied by nasal polypi.

Recent medical literature would indicate that the importance of chronic foci of infection, as a cause of systemic toxemias, has been well appreciated by the medical and dental professions; and an abundance of clinical evidence has been presented to show the dependence of hitherto obscure local and general lesions upon such focal infections. This is particularly true of infections of the mouth, fauces, and sinuses; and the relationship of such infections to general

systemic toxemias, arthritis, myalgia, gastrointestinal disorders, anemias, cardiac lesions, nephritis, neurasthenia, melancholia, loss of weight, slight degree of temperature, insomnia, and aprosexia, has been frequently demonstrated.

While chronic foci of infection may exist in almost any of the structures of the body, there are certain parts which, by their anatomical structure and exposure to infection, may easily become the site of a chronic infection; and the frequency of chronic involvement of the nasal accessory cavities, probably 10 per cent of all adults, makes these nasal sinuses of very great importance as possible sources from which systemic infection may occur.

While the title of this paper does not include the subject of ear infections, I would remind you of the possibility of systemic infections occurring as a result of a focus of infection within the middle ear and mastoid by citing the following case:

Patient, R. M., aged 11, referred to me by Drs. Sedgwick and Rodda on account of a purulent otitis media, which had complicated an attack of scarlet fever five months previously. Proper local treatment had been prescribed, and was continued. Following the attack of scarlet fever there was a severe hemorrhagic nephritis with a large amount of albumin present.

Six weeks after I first saw the case, an acute mastoiditis developed, which made operation necessary. On account of the condition of the patient a rapid mastoidectomy was done under gas-oxygen anesthesia. For a period of several months preceding the operation there had been large quantities of albumin present in the urine; and for three weeks preceding operation there had been a serious edema of the lungs present.

Within a few days following the operation the amount of urine passed increased from 400 c.c. to 1,250 c.c.; and the amount of albumin decreased from 8 to .5, as measured with the Esbach albuminometer; the blood-pressure dropped from 120 to 100; and the edema of the lungs subsided.

## CEREBROSPINAL MENINGITIS\*

By A. KUHLMANN, M. D.

MELROSE, MINNESOTA

On February 25, 1914, a girl six years old was taken sick in school with headache and abdominal pains. A physician was called the next day when two of her brothers were taken sick with vomiting, abdominal pains, and terrific headache.

Frances had a temperature of 101°; pulse, 100; paresis of the right side; retracted neck; and paresis of the arm and legs. There was a red-brown pigmentation over the body more

marked over the abdomen. There were positive Kernig's sign, and herpes of the lips. She was at times in a comatose condition, and at intervals very bright, answering questions very readily.

The following day spinal fluid was withdrawn, and 10 c.c. antimeningitic serum was injected. She did not show any marked change after the injection of the serum. At times she had a ravenous appetite, asking continuously for food,

\*Read before Stearns-Benton County Med. Society.

even after vomiting. For some days her temperature was normal, and at certain days it rose to 101° to 103°. At a later date she was completely deaf for a time, but her hearing was normal towards the last.

In the last month she was stricken with partial blindness, and later on with total blindness.

For three weeks her stomach was so upset that everything taken, medicine or food, was thrown up, and rectal feeding was resorted to for several weeks.

She died about three months after the onset, from complete exhaustion and emaciation.

Joseph, aged 12, was taken sick with headache and abdominal pains at 3:30 P. M. on the 26th of February while doing the chores about the barn. He lay down in the barn, whence he was taken to bed.

John, aged 11, was taken sick the same day at 5 o'clock with vomiting, abdominal pains, and paroxysmal headache so severe that he bounced himself on the pillow, tearing up the pillow-sheets.

Joseph got out of the bed, stating that he would not stay in bed with John. He got out, and later had no other symptoms than a feeling of drowsiness for a few days.

John's headache was of a paroxysmal type. During the attack he exclaimed his head would burst and he cried for help, tearing up the bed-clothes during some of the attacks, which would last for about two to three minutes at first, and when he was over the spell he would talk freely, stating he felt fairly good.

He died inside of thirty-six hours from the onset during a spell of headache, throwing his head backward onto his pillow, throwing the cold applications into the room. He suddenly became cyanotic, and died.

Aloys was taken sick a few hours after John with vomiting, headache, and stomachache. He became unconscious within five hours after the onset. One pupil was dilated, and the other contracted.

He could not be aroused out of a deep, snoring sleep. Towards the last the breathing became of the Cheyne-Stokes character; and he died in this comatose condition inside of fifty-six hours after the onset.

The red-brown, irregular pigmentation on his body was more marked than on the others. A post-mortem examination was made.

Rose, aged four years, vomited, had a sore throat, and developed a brown pigmentation of the skin. After a dose of castor oil and uro-

tropin three times daily she was apparently well within three days.

Josephine, aged two years, vomited and developed a marked pigmentation of the skin. With castor oil and urotropin she was well in two days.

Baby, four months old, vomited, developed a pigmentation over the body, and got well without medicine.

POST-MORTEM BY DR. H. E. ROBERTSON, DEPARTMENT OF PATHOLOGY AND BACTERIOLOGY, UNIVERSITY OF MINNESOTA

Aloysius, aged 9. Case is that of a young boy who had been attending school with his two brothers, John, aged 12, and Joe, aged 10, and one sister, Frances, aged 6, all of whom were well up to Wednesday, February 25, 1914, 2 P. M., at which time Francis had a headache and pains in abdomen, but did not go home until school was out. John was taken sick at 5 P. M., and both he and Frances went to bed. Thursday morning Aloysius and Joseph were taken sick, and also went to bed. Joe recovered in about three hours, and has remained well ever since. Frances, John, and Aloysius continued to grow worse. A typical rash developed on all three. John and Aloysius rapidly lost consciousness, and the former died at 2 A. M., February 28, while the latter died thirteen hours later, the attack in each case covering a period of about fifty-six hours.

The three younger children,—Rosie, aged 4; Josephine, aged 3; and Marie, aged 1,—had remained well up to the time of the post-mortem, at which time Frances still remained sick in bed, with marked retraction of the neck and lower jaw, paresis of the right side (both arm and leg), herpes of nose and lips, headache, positive Kernig's sign, and periods of coma. She had, however, showed some improvement during the day (March the 1st) and spinal puncture was performed, removing about 10 c.c. of cloudy fluid and injecting 15 c.c. of Flexner's serum.

Further inquiry developed the fact that on the 3d of February a boy, aged 6, had suffered from an attack of chicken-pox, and, after partial recovery, without again attending school, on February 18 showed typical symptoms of meningitis. At the time of the post-mortem this boy was in a comatose condition.

*External appearances.*—Body is that of a well-developed, poorly nourished male child, 124 cm. in length. Rigor is present, and there is lividity of dependent parts. Pupils are 6 mm. in diameter and equal. There is no edema, cyanosis, or jaundice. Post-mortem discoloration is present on anterior surface of abdomen.

Body not examined internally.

*Head.*—On removing scalp and calvarium, the dura is found to be congested and tense. On reflecting the dura, surface of cerebrum is dry, deeply congested, and in subarachnoid space, especially along the lines of the vessels, there is considerable yellowish coagulated exudate. On removing brain, this exudate is also found at the base, but is not markedly increased in amount at this point. The exudate is also present over the surface of the medulla and a portion of the upper cord removed with the brain. The right middle ear is normal. The left middle ear shows a slight amount of mucoid fluid. The sphenoid and ethmoid sinuses are practically normal, except for a small amount of stringy mucus.

Cultures made from surface of brain, nose, left middle ear, sphenoid, and ethmoid sinuses.

Smears from surface of brain, stained by Gram, showed the presence of a large number of polymorphonuclear leucocytes, a few of which contained typical Gram-negative diplococci.

#### DIAGNOSES:

1. Epidemic cerebrospinal meningitis.
2. Possible left otitis media and sphenoiditis and ethmoiditis.

#### TREATMENT

The oldest, Joseph, did not receive any medicine except a gargle and a laxative. Gargling was kept up for a month three times a day.

John, the second, was given an enema and a laxative at once and a small dose of calomel every three hours. He died six hours after the first call.

Frances and Aloys received the same preliminary treatment as John.

Frances received a dose of Flexner's serum the third day with no special reaction for the better. In withdrawing the spinal fluid, we had no difficulty. The fluid looked clear to the eye and was sent to the State Board of Health Laboratory with the result of finding the specific germ of the disease. In the second attempt to withdraw fluid, two days later, we were not successful. Three punctures were made always higher up in the spinal canal with a result of withdrawing a little turbid bloody exudate.

We did not inject the serum for fear of getting pressure symptoms on the cord.

In the case of Dr. Campbell's patient, Dr. Burns, of the State Board of Health, withdrew clear spinal fluid freely, and injected 10 c.c. of Flexner's serum. After a long siege the boy recovered; only one dose of serum was given.

With Rosa, who recovered in a few days, we attempted to withdraw fluid, but did not succeed. Criticism from the parents having two dead in the house already, made us stop the use of the serum in the milder cases.

In the last three cases, small doses of urotropin, with laxatives and a tonic, were given with good results.

In regard to the Flexner serum, our results were dubious. The technic is sometimes difficult, and does not work out as smoothly as we read in the books. All the injections were made by Dr. Burns of the State Board of Health.

#### MODE OF INFECTION

Regarding the mode of infection: there is hardly any clue, except that many of the children in school had been afflicted with sore throats, measles, and chicken-pox as you will see in the field data from the State Board of Health by

Dr. Burns. The children had been in a habit of eating snow which was unusually dirty at that time. The well from which the family gets the water is in the barn surrounded by manure and dirt.

#### FIELD NOTES

Epidemic Cerebrospinal Meningitis, Melrose, Stearns Co., March 1 and 2, 1914, by Dr. H. A. Burns.

History—Five pupils in Melrose School developed cerebrospinal meningitis between Feb. 17 and 26.

Inspector, with Dr. H. E. Robertson, Department of Pathology, Medical School, and Dr. A. Kuhlman, H. O., saw cases 2, 3, 4, 5, 6, and 7, at B. W.'s farm, Grove Twp., March 1.

Dr. Robertson did an autopsy on Case 5. (See autopsy.) Flexner's serum (15 c.c.) was given to Case 2. Case 4 on Feb. 26 vomited, had headache and fever for three hours; then was well. B. W. has seven children. Cases 2, 3, 4, and 5 appear to have been infected in school; cases 6 and 7 from them, as insolation was impossible; family was careless and house very dirty.

March 2, inspector saw in Melrose: Case 1, absent from school since Feb. 1 on account of chicken-pox. Was convalescent when meningitis set in. Had seen members of family only since Feb. 1. In coma, seventy hours, improved when given 15 c.c. Flexner's serum.

Inspector examined 449 pupils from 214 families, March 2; 120 from 77 families had not had symptoms, while among 329 from 137 families, 263 had headache, dizziness, earache, sore throat, stomachache, pains in limbs, neck, and eyes in various combinations. In 8 cases the symptom-complex was striking, and forty-five absences were charged against pupils in their families.

Results: Autopsy diagnosis "Epidemic cerebrospinal meningitis" and "possible left otitis media and sphenoiditis and ethmoiditis." Laboratory division reports diplococcus intracellularis meningitidis in spinal fluids of Cases 1, 2, and 5.

Advised C. B. S., Grove Township, to appoint a medical H. O. and to provide serum treatment. Advised Melrose School Board to employ a doctor to examine pupils, and to exclude any with suspicious symptoms.

#### CONCLUSIONS

The most valuable lesson perhaps was to check this dreadful disease in the community. We considered, first, closing the school, but adopted a safer plan, so kept the 600 school children under strict medical supervision for a month. A nurse was engaged to look after the pupils, and to make a daily report to the health officer. All children were subjected to an inspection of the throat, etc. All pupils that had a slight cold had to be provided with a cup; and twice a day, as regular as class-work, they had to gargle their throats under the supervision of the nurse.

A weak Dobell's solution was furnished free by the School District. The throats of the children cleared up in a short time with no further trouble from this disease. This might teach us that supervision and protection of the schools is sometimes better than closing them.



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## THE CAMPAIGN AGAINST INTEMPER- ANCE

It is very evident that the wave of reform that has interested the people in so many states is spreading over the whole country. It is very much like the prohibition campaign which took place after the Civil War, when many of the states were dry. On account of the activity of the dry campaigners, it is also evident that this wave is similar to other waves which sweep over the country, and, unless it is carried on with dignity and with plenty of compelling statistics to back it, the effect will be only temporary. It is rather unpleasant to think that a state which is dry this year, may be wet two years from now. This fact shows in itself the instability of the people, and the thoughtlessness with which they view campaign arguments.

If there were some way to modify the saloon problem by educational methods and by police power, the prohibitionists, or the local optionists would accomplish a more permanent state of affairs. For instance, some of the Western states, like Idaho and Arizona, have enacted such stringent laws that it will be illegal for anyone to have liquor in his possession even. This extreme form of legislation is bound to be reactionary. It

is well known that only a very few people really stop to think and consider; the rest follow blindly a leader or a campaign, simply because they have joined the line of least resistance. They think they are aiding in reform measures, and yet these same people can be confidently relied upon to overturn their own opinions within a reasonable time.

If state-wide prohibition was a good thing after the war, why was it not continued? If it is going to do wonders for the present generation, will it affect the generations to follow? The natural argument is that it will, and that, not only the present generation, but the future generations will benefit even by temporary prohibition. This form of argument does not reckon with future changes in the public mind. The reactionist is always here, and he is bound to assert his desires, particularly when his desires have been legislated out of office. He is bound to kick against the pricks, because he feels that his personal liberty is more or less involved. Of course, he is foolish in this form of argument; and yet he is not more foolish than those who attempt other extreme measures.

THE JOURNAL-LANCET believes that the consumption of alcohol as it now exists is a bad thing for a community, and that the saloons evidently have a very pernicious influence; but it further believes that the majority of drinking men, and of young men who drink because they think it is smart, are not well balanced mentally, that they have diseased tendencies, and not infrequently diseased minds, and that their drinking is due to this condition almost entirely. It will be well, then, before enacting radical measures, to improve the physical welfare of the individual, and, above all, to instruct or train the heads of families to bring up their children in the path of righteousness, and to point out to them, while their character is forming, the evil influence of evil things. Until that is done, there is little hope that positive measures will be kindly received. In fact, just the opposite will probably take place. People love to break the law, or evade it at least, and they will enter into any scheme and will attempt any measure that will make them, as they think, independent.

The most forceful argument that can be brought to bear for prohibition is that forty-three leading life insurance companies have finished their records on about two million lives covering twenty-five years, and from this record, the report, in summarizing, states that nothing has been more conclusively proven than that the

steady, free use of alcoholic beverages, or occasional excess, is detrimental to the individual. In digging up the histories of their applicants, they find that in the past among men whose habits were then considered satisfactory, the death-record shows a reduction of more than four years in the average life of such individuals as compared with the average life of men insurable to-day. It further shows that the mortality-rate among total abstainers during the working years of life is about half of that among those who take two glasses of whisky a day. This probably includes the number of men who drink beer in what they consider a moderate quantity, and others who take other forms of alcohol.

The observation of physicians today is that alcohol in some form is consumed during the time of a prohibition wave, but, of course, the amount is comparatively small, except that more whiskey than beer is bought.

Anything that will relieve the people of a bad physical disorder, or the transmission of degeneracy, is a good thing; but first we should get the people in better mental and physical condition. Educate and train them so that their character will be the basis of a sound physical and mental state.

#### POSTOPERATIVE USE OF QUININE

Bonmat and Cleveland, of St. Louis, in August 7th number of the *Jour. of the A. M. A.*, report their experiences in the use of quinine after an operation. They have used the quinine salts in St. Anthony's Hospital in six hundred cases, comprising all operations requiring an ether anesthesia. Emphasis should be put upon the ether, because the same good results are not always obtained after chloroform anesthesia. Quinine should not be used in chloroform anesthesia until the patient has regained full consciousness, whereas in ether anesthesia it may be used immediately.

The technic of the injection is as follows: Quinine muriate is used in preference to quinine sulphate because of its solubility. Ten grains of quinine muriate are dissolved in two ounces of water at 100° F., and given by rectum immediately after the operation. This is followed in about thirty minutes by saline proctoclysis; and, in septic cases, six ounces of olive oil is added to the saline solution. The quinine solution is repeated every six hours for from four to six doses.

The authors claim that with the use of quinine

in this form, post-operative backache is practically eliminated, and that only about two per cent of the cases suffer any gas-pain to speak of. If it is present, however, one enema produces an efficient result, not only to move the bowels, but for the passage of flatus. Nausea and vomiting are lessened, but not necessarily abolished. Usually, a stomach-wash is sufficient to relieve these conditions. Post-operative thirst is also retarded, and in sixty per cent is entirely absent. The doses referred to above apply to adults; in the case of children, the quinine is reduced to its proper amount.

The quinine treatment is of special advantage in operations in which there is much trauma, particularly in operations which require time and the removal of large masses. This method also removes the necessity of giving morphine, as the patient feels comfortable, and is able to sleep without a narcotic. Sometimes temporary deafness follows this treatment, but that is of slight importance, and lasts at best but two or three days. Sodium bromide may be associated with each dose of quinine, and if given in twenty-grain doses it makes the patient less restless, less nervous, and starts him on a better road to recovery. The bromide and quinine method is particularly preferable in goiter cases, as it is well known that quinine has a beneficial effect upon exophthalmos.

The revival of quinine medication is viewed with some doubt by the younger practitioner. The older man still has faith in quinine; and it evidently does produce some physiological effects, and may be classed among the ephemeral tonics.

#### LEGISLATIVE PUBLICITY

Evidently some of the state medical journals are going to give some publicity on the voting record of the members of the different legislatures. Among them, it is with pleasure that we announce that the *Ohio State Medical Journal*, and the *Journal of the Missouri State Medical Association* are going to do their share in educating medical men; and, it is hoped, directly through them, the education of the legislator. THE JOURNAL-LANCET has already had some brief reference to the votes of our last legislature, and it is our intention to keep this up from time to time, and to have a public record in our columns as to how the various legislators stand in regard to public health.

The meeting of the new "Efficiency and Economy Commission" which takes place in October,

will be presented with a résumé of the laws governing the State Board of Health, and the legal regulations which they have adopted in order to protect the people from diseases through whatever source,—contact, water-pollution, occupation, etc.—and also to instruct the people how to avoid the diseases of middle life, mainly those concerned with the blood-vessels, kidneys, and heart. The unfortunate part of the whole situation is that it is very difficult to gain the attention of the legislative politician in matters of this kind; and it is quite natural that he should throw them aside, because he has, first, no knowledge of the fundamentals of public health, and, having no understanding of problems of this sort, he very naturally seeks other forms of mental diversion, notably local politics. If he can be made to see and understand what the workers are doing to promote public health, he may take a little more interest in the matter, and, if he does, he will discharge his duties in the legislature with far better success.

THE JOURNAL-LANCET has repeated before this time, and will repeat as often as is necessary, the slogan that public health is the greatest thing in the world, and that all other things are subservient to it; but, in order to get this great factor instilled into the minds of the politicians and the lay people, they must be educated in the elementary branches of hygiene and sanitation, and they must also learn that the legal provisions and the statutes of the state are to be followed out and not discarded as many of the irrelevant and needless statutes have been treated.

We would earnestly ask that the physicians throughout the state co-operate with us in this educational campaign. It can be done without friction or without viciousness, and the doctor is the man to do it. If he is in touch with his representative, he is the fountain source from which the representative gets his medical and public-health information. Unfortunately, a good many physicians are almost as indifferent as the politicians; and it is very difficult, sometimes, to make busy country practitioners, as well as indifferent city practitioners, arouse themselves sufficiently to get into politics in this very dignified and scientific way. They can promulgate a great deal of information if they will, and they are asked to consider carefully the information they give their representative, and they are further asked to ally themselves with all workers who are doing what they can to elevate the health of their community and the state at large.

## A "TWILIGHT SLEEP" QUESTIONNAIRE

A "twilight sleep" questionnaire has reached Minnesota physicians, and it has all—and then some—of the earmarks of an advertising scheme for somebody's scopolamin; and it is so crude as to make one wonder how any physician can be gullible enough to be taken in by it. It came from the "Twilight Sleep Association" of "Room 1404, 505 Fifth Avenue, New York." It is evidently a one-room affair. The executive committee is composed of sixteen women, each of whom prefixes Mrs. before her name, with one exception (a Miss); the "endorsing committee" has a membership of sixty members, divided as the aforesaid committee; a board of six officers, including a man treasurer and a man auditor; and the "executive secretary and treasurer" is Miss ——. That's a fine combination to collect data and dollars on and out of "twilight sleep."

## "CIRCUMCISION OF THE TONSIL"

This rather unique title is the subject of a paper in the *Iowa State Medical Journal*, by Dr. F. G. Murphy, of Mason City, and it strikes the writer as a very good idea, at least to present for discussion. Dr. Murphy says that "by circumcision of the tonsil is meant its complete detachment from the pillars, and the breaking up of other adhesions that may be formed by the tonsil." The advantage of this simple operation is that it is an office operation and devoid of pain or hemorrhage, and is best performed under local anesthesia by adrenalin and cocaine.

Dr. Murphy has operated in ninety cases in the last six months, and he is satisfied that a preliminary report of his work may be presented. The operation was first suggested to Dr. Murphy by the fact that a man who had but little time to spare was unable to stay over night in a hospital, and it was not advisable to remove his tonsils under such conditions. Consequently, the pillars and tonsils were completely separated, in order that the tonsils might be removed at a later date. It was discovered in the meantime, however, that the preparation for enucleation had caused an atrophy of the tonsil. This result has been found to be equally satisfactory in other cases; and particularly patients who would not submit to a total extirpation of the tonsils, or those who are physically unable to withstand complete enucleation, have been operated on by this method, and the results have been highly gratifying.



It is necessary to observe the action of the superior constrictor muscle, and to determine its exact locality, for not infrequently the pillars of the muscles ride the tonsils, thus obscuring them and making it seem likely that very little tonsil is in evidence. As a result of this peculiar covering of the tonsil, neither the tonsil nor the pillars functionate properly. The result is that adhesions form, that the tonsil becomes a source of danger, and that, by removing the adhesions and allowing the tonsil to take care of itself, atrophy readily supervenes. During the time of adhesion between the pillar and the tonsil the milking process of the crypts does not take place. Normal drainage is interrupted, and infection occurs, as in any sinus where drainage is obstructed and pathogenic bacteria are present. When the tonsil is entirely separated from the pillars, and the pharyngeal muscles are in good condition, there can be no retention of crypts and no tonsillitis. With the severing of attachments or adhesions, deglutition is more easily performed, and there is no pain or discomfort even though the tonsils are left in place.

The operation, of course, should be thorough, and a portion of the muscles which cover the tonsils should be separated in a surgical manner. If this is done properly, the newly cut surfaces are not likely to adhere. This operation evidently does away with the slitting of the crypts of the tonsil; it does away with total extirpation in many cases; and, what seems to be most important, it does away with possible hemorrhage. It saves time, is clean, and furnishes a means of clearing out foul-smelling or cheesy substances which gather in the tonsillary area.

It is quite likely that Dr. Murphy will receive many criticisms for his presentation of this new operation, for the majority of laryngologists favor a total extirpation. This, however, does not prevent surgeons or general practitioners from familiarizing themselves with this new method of relieving many of their patients from tonsillar disease, and infections that commonly follow tonsillitis.

The recent work of Bass and Johns is an honest effort to solve an important problem, that of the etiology of pyorrhea alveolaris.

The essential symptoms of pyorrhea alveolaris are an ulcerative inflammation of the inner surface of the gum-margin tissue with a more or less profuse flow of pus and coincident destruction of fibre of the peridental membrane and supporting bone of the socket. These writers seem to have jumped to the conclusion that the entameba buccalis, which is so frequently found in these lesions, as well as in healthy mouths, is the cause of this disease, and they have strenuously endeavored to prove this to be a fact. They seem to have been aided in their conclusion by the former knowledge that emetin hydrochlorid has proved to be destructive to the ameba histolytica, as well as to the entameba buccalis, and, because such destruction was coincident with the administration of emetin, they have observed some cases in which partial repair has occurred, and have concluded that the entameba buccalis is the important etiological factor in pyorrhea. They have not been able to grow ameba nor fulfill the postulates of Koch; and experience is now teaching them that the inflammation in some cases temporarily arrested by the use of emetin hydrochlorid, has recurred in a disastrous manner.

Their method of staining this protozoan itself fails to bring out one important fact which has been constantly noted by Henrici in his work upon the ameba,—namely, that, when properly stained, the cell body of the ameba seems to contain many ingested bacteria in a large percentage of instances, bearing out statements made in the able paper of Chiavara, of Rome, whose exhaustive studies of the entameba buccalis have led him to state in a recent article that the ameba is a scavenger, and not a pathogenic organism.

The most important inhabitants of the pyorrhea pocket are the streptococcus viridans of the salivarius type and the staphylococcus. These organisms rapidly destroy the tissue, and are not in any way dependent upon the ameba for their activities, as they frequently transplant into other parts of the body and, in the case of the staphylococcus, produce metastatic abscesses, while, in the case of the streptococcus, low-grade inflammations of the heart-muscle, endocardium, blood-vessels, joints, and kidneys are produced by it.

That the streptococcal family is by far the most important and destructive agent found in pyorrhea pockets is borne out by the fact that pus in considerable bulk stripped from pyorrhea pockets, when inoculated into animals, gives back only the pathologic lesion of the streptococcus viridans or occasionally the staphylococcus. Until the entameba buccalis has been grown experimentally and made to produce alveolodental pyorrhea in healthy animals by inoculation, we must continue to regard this organism as a harmless scavenger.

In a recent series of fifty cases of alveolodental pyorrhea treated by local injection into the pyorrhea pockets of a one-per-cent solution of emetin hydrochlorid and hypodermic injections of emetin hydrochlorid in one-half-grain doses per day until three grains had been given, no appreciable improvement toward repair was produced, except in two cases, and in neither of these was the pus-flow checked, although the patients seemed to improve in their general health. Therefore, while admiring the work of Bass and Johns in many ways, we deeply regret its early publication, for we believe that,

## BOOK NOTICES

ALVEOLODENTAL PYORRHEA. By Charles C. Bass, M. D., Professor of Experimental Medicine, and Foster M. Johns, M. D., Instructor in the Laboratories of Clinical Medicine at the Tulane University Medical College, New Orleans, La. Octavo volume of 167 pages, with 42 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth \$2.50 net.

until the postulates of Koch have been fulfilled and the treatment of emetin hydrochlorid proves to be a specific cure, instead of being mildly helpful in a few sporadic cases, the medical public have once more been unintentionally misled.

We thoroughly agree, however, with Bass and Johns in some of their observations,—namely, that ill-fitting dental work and salivary calculus must all be removed; that coarse tooth-powders tend to break down enamel is also true; and that the disease is almost universal is also true.

We must, however, disagree with them regarding the tooth-brush. The amount of the bacterial mass on the tooth's surface which is removed by the tooth-brush when properly handled, fully justifies its use; and when ordinary care of the tooth-brush is exercised, the tooth-brush is an invaluable utensil in mouth-sanitation, and will continue to be such for generations to come. Their advice as to the internal use of ipecac and al cresta has done many individuals great damage, as it markedly interferes with digestion; and we must also thoroughly disagree with them as to the benefit of the hypodermic injections of emetin, which in a large number of instances creates sore and painful areas in the tissues, which remain so for weeks and even months following its exhibition. We have also noticed several cases in which profound emesis was the result of its hypodermic use.

Altogether the consensus of opinion in the dental profession as to the value of emetin hydrochlorid as a specific in the treatment of pyorrhea alveolaris is distinctly unfavorable. Its use will be continued by some men to learn why it has conferred benefit in some few cases and utterly failed in others. —HARTZELL.

DIARRHEAL, INFLAMMATORY, OBSTRUCTIVE, AND PARASITIC DISEASES of the Gastro-Intestinal Tract. By Samuel Goodwin Gant, M. D., LL. D. Philadelphia and London: W. B. Saunders Company, 1915.

Dr. Gant has done the profession and the public a great service in emphasizing the necessity for a thorough examination of all the sources from which the above named maladies may arise. Disturbances of gastric, enteric, pancreatic, and dietary origin, as well as those from the nervous system and the blood, receive due consideration. Parasites and bacteria, as pathological factors, are treated in extenso; and diarrheas, due to malignancy and mechanical causes, receive appropriate discussion also. It is worthy of comment, however, that no description is given of Schmidt's test-diet (*Probe-diet*) for diagnosis and treatment, nor is any mention made of the duodenal tube as a means of securing duodenal contents for analysis.

Considerable space is devoted to tuberculosis; and the author urges the surgeon not to be too hasty in deciding that a tumor of the cecum is cancerous, for it may be tubercular and a proper subject for extirpation.

Syphilis is given a prominent place, a subject that is in danger of being overlooked even by the specialist.

The pathology of the gastro-intestinal tract is quite extensively treated both in the text and by illustrations.

Only five pages are devoted to the general examination of the feces, but considerable space is given to the feces in the chapters devoted to the parasitic and bacterial infections of the intestines.

The author appends a formulary which gives quite a number of prescriptions that he has found useful and

closes with a résumé of the surgery applicable to the subjects embraced in the title.

The style of the work does not always seem to have that clearness that is a fortunate gift of some writers.

—KNIGHT.

## NEWS ITEMS

Wilton, N. D., has recently opened a new hospital.

Dr. A. J. Peterson has moved from Spicer to Forest City, Iowa.

Thirty physicians took the state examination in Montana last week.

Dr. T. J. Strong, of Enderlin, N. D., has moved to Williston, N. D.

Dr. A. J. Peterson has moved from Spicer, Minn., to Forest City, Iowa.

Dr. A. C. Tanner, of McGregor, is in New York doing postgraduate work.

Dr. A. W. Graham, of Chisholm, was married Sept. 29 to Miss Alecia V. Madden, of Rochester.

Dr. E. C. Beckwith, who formerly practiced in Rochester, died last week at Ukiah, Calif., at the age of 83.

Dr. M. O. Oppegaard is leaving New London and will spend several months doing postgraduate work in the east.

Drs. Gilkinson and Hengstler, of Osakis, have rented the old high school building at that place to be used as a hospital.

Dr. E. Y. Arnold, a resident of Minnesota since 1850, died at his home in Longville, Sept. 7, as a result of a cerebral hemorrhage.

Dr. Harry Cannon, of St. Paul, has returned from Boston, where he has been for the past two months, doing postgraduate work.

Dr. William D. Myers, of Minneapolis, died on Sept. 29, at the age of 85. Dr. Myers had practiced medicine over a third of a century.

Dr. B. F. McGrath, of the Mayo Clinic, has been appointed professor of experimental and junior surgery in Marquette University.

The University of Minnesota will not undertake to send a hospital unit to France because the opportunity for studying was not such as would justify the expense.

The Minnesota State Medical Association, in its annual meeting two weeks ago, in Rochester, passed a resolution favoring the prohibition of the sale of intoxicating liquor.

Dr. A. V. Young, of Hankinson, N. D., has sold his practice to Dr. H. E. Dahleen, of Minneapolis, and will locate in Duluth, and will be associated with Dr. D. E. Seashore.

Dr. W. A. Evans, the able medical editor of the *Chicago Tribune*, delivered two or three public addresses in Minneapolis last week, which were highly enjoyed and appreciated.

The Tourtellotte Memorial Deaconess' Home in Minneapolis was dedicated last week. The Home cost \$125,000, and was the gift of a woman in memory of her husband whose name it bears.

The firm of Drs. Dunn, Lewis, and Kern, of St. Cloud, dissolved partnership on Sept. 1. Dr. Dunn has moved his offices to the Edelbrook Building, and will share offices with Dr. Phil Stange.

Five thousand dollars is being raised by the Jewish Welfare Society of St. Paul to establish a co-operative meat market, the profits of which will go to the Jewish sufferers in Europe and to a Jewish hospital to be built in St. Paul.

We learn that Dr. A. J. Kirghis, of St. Cloud, was not called to France to serve in the army, as stated in the St. Cloud and other papers. He is a naturalized American citizen. He was called to France because of the serious sickness of his father and a sister.

A 12-story, million dollar office building for physicians in Minneapolis is talked of. Mr. Horace Lowry, owner of the handsome physicians' building, known as the Lowry Building, in St. Paul, will erect it if the Minneapolis physicians look with favor upon the project.

The report of the sudden illness of Dr. H. C. Aldrich, of Minneapolis, while reading a paper at the State Institute of Homeopaths, held in St. Paul, was greatly exaggerated. Dr. Aldrich is now able to go to his office, and will soon be entirely recovered. He is the president of the American Institute of Homeopaths.

The full transactions of the Minnesota State Medical Association, held the first of the month at Rochester, will appear in our issue of Nov. 1. The following officers were elected: President, Dr. J. Warren Little, Minneapolis; first vice-president, Dr. J. J. Donovan, Litchfield; second vice-president, Dr. A. C. Rogers, Faribault; third vice-president, Dr. C. O. Wright, Luverne; secretary, Dr. Thomas McDavitt; treasurer Dr. Earl H. Hare, Minneapolis; councilor of the Fourth District, Dr. R. J. Hill, Minneapolis; councilor

of the Seventh District, Dr. F. A. Dodge, Le Sueur; delegate to the A. M. A. for two years, Dr. W. L. Beebe, St. Cloud; alternate for two years, Dr. Geo. D. Head, Minneapolis; alternate for one year, Dr. H. P. Ritchie, St. Paul. The next meeting will be held in Minneapolis.

#### LOCUM TENENCY WANTED

A recent graduate, who has had experience, wishes work until January 1. Can give references. Address 255, care of this office.

#### PRACTICE WANTED

In Minnesota, Dakotas, or Wisconsin, an unopposed or fairly opposed practice by physician of experience. Address 263, care of this office.

#### PHYSICIAN WANTED

Wolverton, Minn., has an opening for a good doctor. This is a Scandinavian community. Write W. F. Williams, Druggist, for information.

#### MINNEAPOLIS OFFICE FOR RENT

In Masonic Temple, on second floor, fronting on Hennepin avenue, two rooms and joint reception-room, with oculist and oto-laryngologist. Call at 203 Masonic Temple, Minneapolis.

#### WANTED—TWO INTERNES

At the Norwegian Deaconess Hospital, Minneapolis. This hospital is a general hospital, new and up to date with 100 beds. Address application to Dr. A. C. Tingdale, Syndicate Building, Minneapolis.

#### SITUATION WANTED

A young lady with experience in general office and reception-room work, treatments, dressings, and various requirements, desires a position with one or more doctors. Address 261, care of this office.

#### ASSISTANTSHIP WANTED

I wish a position in or near the Twin Cities that I may devote part of my time to, and have time left for, postgraduate work. Might consider a locum tenency or institution work. Address 254, care of this office.

#### PARTNERSHIP WANTED

General practitioner capable of doing first-class refraction, also operative work on nose, throat, and ear, wishes to associate with busy practitioner or surgeon, or form a partnership. Address 267, care of this office.

#### PRACTICE FOR SALE

Competent young surgeon to take over my practice and home in Minneapolis. Practice last year \$8,000, surgical and medical. Contract work bringing \$100 a month. Home new and very desirable. Thorough introduction. Price of home, \$8,000; practice free to purchaser. Half cash necessary—no triflers or incompetents. Sickness reason for leaving. Address 264, care of this office.



## APPARATUS FOR SALE CHEAP

Betz Galvanic and Faradic Wall Cabinet, oak finish and bevel-plate glass; also 50 wet cells; 1 Betz Giant Cautery; 1 small hand Vibrator; a variety of surgical instruments. Owner recently deceased. Address 252, care of this office.

## ASSISTANTSHIP WANTED

Assistantship wanted with busy physician and surgeon. Age, 30, A. B., M. D., Class A school, excellent hospital training and experience in general practice, good appearance, no bad habits, can furnish references. Address 266, care of this office.

## MINNEAPOLIS OFFICE FOR RENT

Will rent my office, on Nicollet Ave., with good furniture, modern operating table, instrument and medicine cabinet, Fairbanks scale, filing cabinet, roll-top desk, etc., in one of the best office buildings in the city. Rent cheap. Address 265, care of this office.

## LOCUM TENENS WANTED

I want a regular physician to take my practice for three and a half months. Must be a man with at least one year of experience in either general or hospital work. Will pay good salary. Address 256, care of this office. Good location in east central North Dakota.

## PRACTICE FOR SALE

I have been located for nine years in a town of between two and three hundred population in the northern part of North Dakota. There is no doctor nearer than 11 miles north, 18 miles east or west, and 16 miles south. Have a neat office. Town has good school, church, and first-class drug store. Will sell to purchaser of office furniture and lot. Location is certainly good and price is easy. Address 258, care of this office.

## PRACTICE FOR SALE

A \$4,500 practice for sale, best location in Southern Minnesota, in town of 600 on two railroads, growing rapidly, thickly settled country. Two towns without doctors in territory; fine roads. New modern home with office and garage. Will sell on easy terms or exchange for farm land. Collections 100 per cent, thorough introduction. Practice could be greatly increased by office work and surgery. Leaving to specialize. Address 259, care this office.

## DOCTOR

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-ninth annual session opens September 27, 1915, and closes June 3, 1916. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

CITIES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Folomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Ada	1,253	1,432	0															
Albert Lea	4,500	6,192	11	3														3
Alexandria	2,681	3,001	3														1	
Anoka	3,769	3,972	1															
Austin	5,474	6,960	7															
Barnesville	1,326	1,352	0															
Bemidji	2,183	5,099	3	1														1
Benson	1,525	1,677	2	1													1	
Blue Earth	2,900	2,319	2															
Brainerd	7,524	8,526	10														1	
Breckenridge	1,282	1,840	2															2
Canby	1,100	1,528	0															
Cannon Falls	1,239	1,385	0															
Chaska	2,165	2,050	2	1														
Chatfield	1,426	1,226	0															
Cloquet	3,074	7,031	5	1			1										1	
Crookston	5,359	7,559	10	1													2	
Dawson	962	1,318	1															
Detroit	2,060	2,807	3															1
Duluth	52,968	78,466	68	9			5										5	9
East Grand Forks	2,077	2,533	1															1
Ely	3,572	3,572	2															
Eveleth	2,752	7,036	3			1												
Fairmont	3,440	2,958	2															
Faribault	7,868	9,001	2	1														
Fergus Falls	6,072	6,887	7		1													
Glencoe	1,788	1,788	1															
Glenwood	1,116	2,161	1															
Granite Falls	1,454	1,454	0															
Hastings	3,811	3,983	3														1	
Hutchinson	2,495	2,368	2			1												
International Falls		1,487	2														1	
Jordan	1,270	1,151	2															
Lake City	3,142	3,142	3															
Le Sueur	1,937	1,755	0															
Little Falls	5,774	6,078	5	1	1												1	
Luverne	2,223	2,540	6														1	1
Madison	1,336	1,811	0															
Mankato	10,559	10,365	9	1				1									1	
Marshall	2,088	2,152	4	1														
Melrose	2,591	2,591	0															
Minneapolis	202,718	301,408	296	18	7	13	1					2				5	24	30
Montevideo	2,146	3,056	5														1	
Montgomery	979	1,267	4															1
Moorhead	3,730	4,840	3														1	
Morris	1,934	1,685	0															
New Prague	1,228	1,554	2	1														
New Ulm	5,403	5,648	10															
Northfield	3,210	3,215	1														1	
Ortonville	1,247	1,774	3		1													
Owatonna	5,561	5,658	3	1													1	
Pipestone	2,536	2,475	3															
Red Lake Falls	1,666	1,666	2															1
Red Wing	7,525	9,048	11	2											1	1		
Redwood Falls	1,661	1,666	1															
Renville	1,075	1,182	0															
Rochester	6,843	7,844	45	1	1												11	1
Rushford	1,100	1,011	0															
St. Charles	1,304	1,159	1															
St. Cloud	8,663	10,600	10	1	1												1	1
St. James	2,102	2,102	2															
St. Paul	163,632	214,744	173	19	4	8	2		1		1			1		17	1	6
St. Peter	4,302	4,176	1															
Sauk Centre	2,154	2,154	4															2
Shakopee	2,046	2,302	1														1	
Sleepy Eye	2,046	2,247	0															
South St. Paul	2,322	4,510	3			1	1											
Staples	1,504	2,558	2															
Stillwater	12,318	10,198	7		1												1	1
Thief River Falls	1,819	3,174	3															
Tower	1,111	1,111	0															
Tracy	1,911	1,826	0															
Two Harbors	3,278	4,990	3															
Virginia	2,962	10,473	2														1	
Wabasha	2,622	2,622	14		1	1					1						2	2
Warren	1,276	1,613	4														1	
Waseca	3,103	3,054	1			1												2
Waterville	1,260	1,273	0															
West St. Paul	1,830	2,660	0															
Willmar	3,409	4,135	1			1												
Winona	19,714	18,583	1															1
Winthrop	813	1,043	1															
Worthington	2,386	2,385	3	1												1		1

## REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	1															
Aitkin	1,719	1,633	0															
Akeley			0															
Appleton	1,184	1,221	0															
Belle Plaine	1,121	1,204	1															
Biwabik		1,695	2		1													
Bovey		1,377	2															
Browns Valley	721	1,058	2															
Buffalo	1,040	1,227	2	1		1												
Caledonia	1,175	1,372	2	1														
Cass Lake	546	2,011	2															
Chisholm		7,684	3															
Coleraine		1,613	0															
Delano	967	1,031	2															
Farmington	733	1,024	2			1												
Fosston	864	1,055	1															
Frazee	1,000	1,645	2															
Grand Rapids	1,428	2,239	3															
Hibbing	2,481	8,832	6								1				1			1
Jackson	1,756	1,907	3															
Janesville	1,254	1,173	1															1
Kenyon	1,202	1,237	2															1
Lake Crystal	1,215	1,038	0															
Litchfield	2,280	2,333	2	1														
Long Prairie	1,385	1,250	1													1		
Madelia	1,272	1,273	3															1
Milaca	1,204	1,102	0															
Mountain Lake	959	1,081	0															
Nashwaubek		2,080	1															
North Mankato	939	1,279	0															
North St. Paul	1,110	1,404	3	1														
Osakis	917	1,013	1															
Park Rapids	1,313	1,850	5	2														
Pelican Rapids	1,033	1,019	0															
Perham	1,182	1,376	0															
Pine City	993	1,258	3													1		
Plainview	1,038	1,175	0															
Preston	1,278	1,193	0															
Princeton	1,319	1,555	6		1									1		1		2
St. Louis Park	1,325	1,743	1															
Sandstone	1,189	1,818	0															
Sauk Rapids	1,391	1,745	1															
South Stillwater	1,422	1,343	0															
Springfield	1,511	1,482	2		1													
Spring Valley	1,770	1,817	2							1								
Wadena	1,520	1,820	2															
Wells	2,017	1,755	0															
West Minneapolis	2,250	3,022	1															
Wheaton	1,132	1,300	1															
White Bear Lake	1,288	1,505	2															
Windom	1,944	1,749	1															
Winnebago City	1,816	2,555	0															
Zumbrota	1,119	1,138	1															1

## STATE INSTITUTIONS

Anoka, Asylum	4														1			
Faribault, School for Blind	1																	
Faribault, School for Deaf	0																	
Faribault, School for Feeble Minded	5	1													2			
Fergus Falls, Hospital for Insane	5	1													1			
Hastings, Asylum	3																	
Minneapolis, Soldiers' Home	4																	
Owatonna, School for Dependents	0																	
Red Wing, State Training School	0																	
Rochester, Hospital for Insane	4																	
Sauk Centre, Home School for Girls	0																	
St. Peter, Hospital for Insane	8	1																
St. Cloud, State Reformatory	0																	
Stillwater, State Prison	0																	

## OTHER PARTS OF STATE

671	61	12	26	5	3	1		5		3	2	21	65	2	72
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Total for state	1588	135	34	61	9	4	3	0	13	0	3	13	42	145	5	151
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\*No report received. Registrar not doing his duty."

110 stillbirths not included in above totals.



## PUBLISHER'S DEPARTMENT

### PRODUCTS OF REED & CARNRICK

For over a quarter of a century the products of Messrs. Reed & Carnrick have been announced in our advertising columns to the medical profession. The house has been a pioneer in chemical laboratory work, and its products have always been modestly and ethically presented to physicians. Its special line of work has been in the digestants; and its literature on the subject educational.

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The treatment of infectious diseases with preparations derived from corresponding micro-organisms long since passed the experimental stage, and bacterial vaccines may be said to occupy an assured place in therapeutics. These vaccines, as is doubtless well known to most physicians, are suspensions, in physiologic salt solution, of killed bacteria. An important effect of their administration is to raise the destructive power of the patient's leucocytes against the specific living invaders. Injected into the human organism, bacterial vaccines have an effect similar to that produced on the horse by the introduction of toxins or killed cultures: they cause active immunity. In other words, the administration of a dose of bacterial vaccine stimulates the patient to produce an additional supply of antibodies, thus enabling him to resist the disease.

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Some idea of the scope which bacterial-vaccine therapy has come to assume may be gathered from an announcement which Parke, Davis & Co. are making in current medical journals and which physicians will do well to consult. Twenty-three vaccines are listed in the advertisement. They are supplied in 1 cc. glass syringes, 1 cc. glass bulbs, 5 cc. vials and 20 cc. bottles, all sealed in a manner that guarantees the sterility of their contents. The syringes are designed for the use of physicians who desire to inject the fluid without first removing it from the original container.

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The comparison as to healthfulness is based directly on the chemical reactions that take place in the baking, by comparing the amounts of residue from different powders of *the same strength* in the light of their medicinal doses.

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# THE JOURNAL-LANCET

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No. 21

## TRANSACTIONS OF THE MINNESOTA STATE MEDICAL ASSOCIATION

FORTY-SEVENTH ANNUAL MEETING

1915

### OFFICERS AND COMMITTEES FOR 1916

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JOHN W. LITTLE, M. D. .... Minneapolis

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#### SECOND VICE-PRESIDENT

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#### COUNCILOR—FOURTH DISTRICT

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#### COUNCILOR—FIFTH DISTRICT AND PRESIDENT OF THE COUNCIL

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#### COUNCILOR—SIXTH DISTRICT

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# MINNESOTA STATE MEDICAL ASSOCIATION

Minutes of the Fourty-seventh Annual Meeting, held at  
Rochester, September 30, and October 1, 1915

## THURSDAY, SEPTEMBER 30—FIRST DAY—MORNING SESSION

The Association met in the Universalist Church, and was called to order at 9:00 A. M., by the President, Dr. John T. Rogers, St. Paul.

During the delivery of President Roger's Address, the First Vice-President, Dr. L. M. Roberts, of Little Falls, occupied the chair.

At the conclusion of the address, Vice-President Roberts said:

You have listened attentively and carefully to this address, and it is needless for me to call your attention to the earnestness of the speaker and to the valuable points he brought out. As your President, it is my duty to say that the Chair will entertain a motion to instruct the House of Delegates to consider any part or the whole of this address.

It was moved that the address be referred to the House of Delegates for the purpose of considering the suggestions and recommendations contained therein. Seconded and carried.

Dr. S. E. Sweitzer, Minneapolis, read a paper entitled "Radium in Dermatology," which was discussed by Drs. Crume, New, Farr, Little, Beckman, Irvine, and, in closing, by the essayist.

Drs. N. Linneman and E. L. Tuohy, Duluth, read a joint paper, entitled "Syphilis," which was discussed by Drs. Tuohy, Eusterman, Ball, Thomas, Sweitzer, and, in closing, by Dr. Linneman.

Dr. R. D. Mussey, Rochester, read a paper entitled "Clinical Observations in Luetic Disease of the Heart and Aorta," which was discussed by Drs. White, Tuohy, and, in closing, by the essayist.

Dr. A. A. Law, Minneapolis, followed with a paper entitled "Auto-Grafts in Infected Fields," which was discussed by Drs. Little, Nippert, Corbett, Mann, Farr, and, in closing, by the essayist.

On motion the Association adjourned until 2:00 P. M.

## FIRST DAY—AFTERNOON SESSION

The Association re-assembled at 2:00 P. M., and was called to order by the President.

Dr. J. W. Markoe, New York, delivered the

Address in Surgery, on the subject of "Open-Air Treatment in Surgery."

At the conclusion of the address, Dr. Arthur T. Mann made the following motion:

Inasmuch as this address is not open to discussion, I move you, sir, that we extend a vote of thanks to Dr. Markoe for his very interesting and instructive address. Seconded by Dr. R. E. Farr, and carried.

Dr. Charles H. Mayo, Rochester, read a paper entitled "Examination, Preparation, and Care of Surgical Patients," which was discussed by Drs. MacLaren and Moore.

Dr. A. C. Strachauer, of Minneapolis, read a paper on "Laminectomy Under Local, Not Spinal, Anesthesia"; and Dr. L. E. Dougherty, St. Paul, read a paper on "Local Anesthesia." These two papers were discussed together by Drs. Ball, Ritchie, Farr, Moore, Beckman, Geist, Herron, Brown, and discussion was closed by the authors of the papers.

Dr. A. E. J. Solmer, Mankato, read a paper entitled "Clinical Observations and Deductions of Some Obscure Infections," which was discussed by Drs. Ritchie, Hare, Lewis, McGroarty, Earl, Boehm, and, in closing, by the essayist.

Dr. M. M. Ghent, St. Paul, read a paper entitled "The Prone Position and Its Uses," which was discussed by Drs. Sterner, Andrews, Holcomb, Nippert, Lyon, and, in closing, by the essayist.

On motion the Association adjourned until 8:00 P. M.

## FIRST DAY—EVENING SESSION

The Association met at the High School building, and was called to order at 8:30 P. M. by the President.

Dr. William L. Rodman, of Philadelphia, delivered an address entitled "Chronic Interstitial Mastitis."

At the close of the address, President Rogers, on behalf of the Association, thanked Dr. Rodman for his very instructive and delightful address; he also thanked the ladies of Olmsted County for the very excellent banquet given.

On motion the Association adjourned until 9:00 A. M., Friday.

## FRIDAY, OCTOBER 1, 1915—SECOND DAY—MORNING SESSION

The Association met at 9:10 A. M., and was called to order by the President.

Dr. Martin Fisher, of Cincinnati, Ohio, deliv-

ered the Address in Medicine, selecting for his subject "Prophylaxis and Treatment of the Nephritides."

The President extended the thanks of the Association to Dr. Fisher for his instructive and highly interesting lecture.

Dr. C. M. Jackson, of Minneapolis, read a paper entitled "Embryology and Medicine," which was discussed by Dr. Wilson.

Dr. J. G. Cross, Minneapolis, read a paper entitled "An Analytical Review of Four Hundred Pneumonias."

Dr. D. M. Berkman, Rochester, followed with a paper entitled "Medico-Surgical Management of the Diabetic Patient," which was discussed by Dr. Gilfillan.

On motion the Association adjourned until 2:00 P. M.

## SECOND DAY—AFTERNOON SESSION

The Association re-assembled at 2:15 P. M., and was called to order by the President.

Dr. A. C. Baker, of Fergus Falls, read a paper on "Appendicitis," which was discussed by Dr. Moore.

A paper by Dr. Cornelius Williams, St. Paul, entitled "Medicine and the State," was, on motion of Dr. Nippert, accepted and ordered printed without being read, in the absence of the author.

Dr. W. H. Condit, Minneapolis, read a paper entitled "Compensatory or Ectopic Menstruation," which was discussed by Dr. Rothrock.

Dr. I. J. Murphy, St. Paul, read a paper entitled "The Preventable Field; Relation of the Practicing Physician to the Local and State Health Officer"; and Dr. L. E. Clayton, Red Wing, read a paper entitled "Race Betterment." These two papers were discussed together by Drs. Bailey, Chesley, Boehm, and the discussion was closed by the authors of the papers.

Dr. Arthur Collins, Duluth, read a paper entitled "Perforating Ulcer Following Gastro-enterostomy," which was discussed by Dr. William J. Mayo, and, in closing, by the essayist.

Dr. C. C. Balfour, Rochester, read a paper entitled "Varicose Veins and Ulcers; Surgical Treatment and Results," which was discussed by Drs. Hare, Bacon, Strachauer, and, in closing, by the essayist.

Dr. E. M. Hammes, St. Paul, followed with a paper entitled, "Internal Secretions in Relation to Neurology and Psychiatry," which was dis-

cussed by Drs. Corbett, Boehm, and, in closing, by the essayist.

Dr. J. G. Lewis, Minneapolis, exhibited slides of colored drawings illustrating diseases of the pharynx.

Dr. C. P. Robbins, Winona, read a paper entitled "Semeiotic Significance of Pathological Findings of Adult Feces."

Dr. Hare, acting as Chairman, extended the sincere thanks and gratitude of the members of the Association to the Olmsted County Medical Society through Dr. Beckman for the pleasant and profitable meeting, as well as the enjoyable and delightful entertainment extended to the members.

On motion the Association adjourned *sine die*.

## Proceedings of the House of Delegates

### FIRST SESSION—WEDNESDAY, SEPTEMBER 29, 1915

The House of Delegates met in the Surgeon's Club building, Rochester, and was called to order at 2:15 P. M. by the President, Dr. John T. Rogers, St. Paul.

The President: The first order of business will be the appointment of a Committee on Credentials. I will appoint on this committee Dr. H. M. Workman, Tracy, and Dr. J. T. Christison, St. Paul.

Dr. Workman, Chairman of the Committee on Credentials, presented the following report for that Committee:

Aitkin—Delegate: B. W. Kelly.  
 Blue Earth County—Alternate: H. J. Lloyd.  
 Brown-Redwood—Delegate: F. D. Gray.  
 Camp Release—Delegate: D. N. Jones.  
 Carlton—Delegate: Alexander Barclay.  
 Central Minnesota—Delegate: H. C. Cooney.  
 Goodhue—Delegate: J. A. Gates.  
 Hennepin—Delegates: C. G. Weston, H. P. Sweetser, Emil Geist, George Crume, Geo. D. Haggard, and H. L. Staples; Alternates: C. P. Nelson and A. S. Hamilton.  
 Houston-Fillmore—Delegate: G. M. Helland.  
 Kandiyohi-Swift—Delegate: C. L. Scofield.  
 Meeker—Delegate: W. P. Robertson.  
 Mower—Delegate: A. E. Henslin; Alternate: M. J. Hart.  
 Olmsted—Delegate: G. J. Thomas.  
 Park Region—Delegate: A. C. Baker.  
 Ramsey—Delegates: W. A. Dennis, J. T. Christison; Alternates: L. E. Daugherty, P. B. Cook, H. T. Nippert.  
 Red River Valley—Delegate: Theodore Bratrud.  
 Rice—Delegate: W. A. Hunt.  
 Scott-Carver—Delegate: H. A. Schneider.

St. Louis—Delegates: A. N. Collins, E. L. Tuohy.  
 Steele—Delegate: Benedict Melby.  
 Southwestern—Delegate: L. A. Williams.  
 Wabasha—Delegate: W. B. Heagerty.  
 West Central—Delegate: E. T. Fitzgerald.  
 Winona—Delegate: E. S. Muir; alternate: E. M. McLoughlin.

The President: The next thing in order is reports of officers, and the first is the report of the Secretary.

#### REPORT OF THE SECRETARY

Fifteen hundred and ten members are on the rolls of the Association for the year 1914. No new component societies have been organized, nor have any been disbanded.

The defense feature is more fully explained in the Attorney's Report. We have had more expense in our defense than in any year since organization. This is the history of all the states with defense features. Some added cases, undoubtedly, are due to the Workmen's Compensation Act. The ambulance-chasing attorney has been prevented from his usual chance of mulcting the corporations, and has turned part of his energies to attempting to extort from physicians, often for little or no cause, and usually the attempted "hold-up" of the doctor is in answer to an attempt of the doctor to collect a just bill long overdue.

No case of any great interest has occurred except the Lester case. As you will remember, the doctor was indicted for involuntary manslaughter, instead of being sued for malpractice, on account of the death of a patient after an operation for appendicitis. A second trial took place this month, the jury standing seven to three for conviction. Since then the case has been withdrawn and closed.

THOS. McDAVITT, M. D., Secretary.

The following is the report of the attorney, Dr. Edmund S. Durment:

#### ATTORNEY'S REPORT

The following is a detailed statement of work done for the Minnesota State Medical Association since my last report, which was dated September 15, 1914:

##### 1. *State of Minnesota vs. Dr. C. A. Lester*

At the time I rendered my last report, this case had been appealed to the Supreme Court. The Supreme Court held the indictment sufficient and in November, 1914, sent the case back to the District Court for trial. It was tried in February last and the jury disagreed. It is again on the calendar for trial at the September term of the District Court of Ottertail County.

##### 2. *Anthony and Pearl Sorensen vs. Dr. H. E. Robertson. Same plaintiffs vs. Drs. A. C. Potter, J. P. Sedgwick and H. E. Robertson*

These cases have not been pressed for trial because of the absence of Dr. Robertson in Europe. He has recently returned, and the cases have been set for trial in Hennepin County this fall.

##### 3. *Mary A. Coffin vs. Dr. C. L. Gotham*

The real controversy in this case, as stated in my last report, was over the amount of the bill which Dr.

Gotham had against plaintiff and her husband. Dr. Gotham deemed this bill to be uncollectible, and was glad to compromise it for an amount somewhat smaller than the face of it. As soon as this settlement was arrived at the malpractice suit was dismissed on its merits. In other words, it is conceded that there was no basis for the claim of malpractice asserted against Dr. Gotham.

##### 4. *Mary E. Flynn vs. Dr. George G. Eitel*

This case was tried before a jury at Minneapolis in January last, the trial consuming some five or six days. A verdict was rendered by the jury in favor of Dr. Eitel.

##### 5. *Mary Walsh vs. M. A. and F. W. Burns*

This case was on the January, 1915, calendar of the District Court of Big Stone County for trial, but was continued, and if not dropped, will doubtless be tried at the next term of court.

##### 6. *Nels P. Bismark vs. Melvin Nelson and Raymond Whittier*

This case is pending in Kanabec County. No effort has been made to bring it on for trial, and we think there is a possibility that the case will be dropped.

##### 7. *Herman Mueller vs. Dr. William E. Browning*

This case was for trial at the October, 1914, term of the District Court of Houston County. Counsel on both sides were ready to try the case at the appointed time, but Judge Kingsley was suddenly taken sick, and all cases upon the calendar were continued until the next term of court. It was again continued at the March term of court and probably will be tried at the coming fall term.

##### 8. *Minnie Stengel vs. Drs. Charles F. Nootnagel and John W. Bell*

Nothing has been done by the plaintiff toward pressing this case for trial.

##### 9. *John Bartholomew vs. Drs. Gilbert L. Hagen and Alfred N. Bessen*

This suit came on for trial on April 5 last, and was dismissed by the plaintiff. We appeared for Dr. Hagen.

On July 22 last, a new suit was commenced. We have appeared and answered on behalf of Dr. Hagen. A note of issue has been served placing the case on the District Court calendar of Hennepin County, and the probabilities are that the case will be reached and tried at the fall term of court.

##### 10. *Emma Haslach vs. Dr. J. J. Platt*

This suit was commenced on December 8, 1914, and was on the March term of the District Court of Ramsey County for trial. The plaintiff was not ready for trial at this term, nor at a succeeding term, and finally the matter was continued until the October term of court. The probabilities are that the case will not be pressed for trial, but will be dropped.

##### 11. *Martin W. Scanlon vs. Dr. Fred H. Aldrich*

This suit was commenced in March, 1915, and was tried at the April term of the District Court of Redwood County. The jury returned a verdict in favor of the doctor.



12. *Kate Jones, as Administratrix of the Estate of Hugo Fair, deceased, vs. Dr. E. H. Marcum*

This action was commenced on November 30, 1914, and was tried at the adjourned term of the District Court of Beltrami County on April 15, 1915. After plaintiff had introduced her evidence, she dismissed the action.

13. *Dr. J. J. Ratcliffe vs. A. E. Lyman*

Dr. Ratcliffe rendered a bill to A. E. Lyman for professional services, and commenced suit in Justice Court of Aitkin County therefor. Mr. Lyman answered and set up a counterclaim for alleged malpractice. At the trial the defendant made no appearance and judgment was rendered for Dr. Ratcliffe for the amount of his bill.

14. *Wilda J. Hiles vs. Dr. Norman Dreisbach*

This action was commenced in May last. On behalf of the defendant a motion was made to have the complaint made more definite and certain. Plaintiff's attorney at the time of the hearing consented that the motion be granted, and promised to serve a new complaint. Although some months have gone by he has not done so, and the probabilities are that the action will not be further pressed.

15. *Peter Olson vs. Dr. J. S. Reynolds*

This action was commenced in the District Court of Hennepin County in June last. We appeared for the doctor and interposed an answer on his behalf and the suit has been put on the calendar for trial and will probably be reached and "disposed of this fall." (Added on authority of A. R. Moore, Mr. Durment's partner, Sept. 3, 1915.)

16. *Ole M. Ostrom vs. Dr. Roe W. Allen and others*

This suit was commenced in Jackson County, by service of summons and complaint in April, 1915. Dr. Allen signed the usual authorities, and we have interposed an answer on his behalf. The case is still undetermined.

In addition to the above matters, I, acting under your directions, have had correspondence with various members of the Association, and have furnished numerous opinions with reference to matters submitted to me.

Respectfully submitted,

EDMUND S. DURMENT.

The President: You have heard the report of the Secretary. What will you do with it?

It was moved that the report be placed on file. Seconded and carried.

Dr. Workman: On behalf of the Council, I would like to offer the following resolution:

RESOLVED, that the Council is hereby authorized to employ such experts as the attorney for the Association deems necessary, and they are to be paid a sum not to exceed \$50.00 per day for necessary expenses.

I move its adoption.

This resolution grows out of the fact that in the Lester case we had to employ experts away from the place of trial (Alexandria) because the

State had subpoenaed every physician there; and it was necessary to take men from Minneapolis or Fergus Falls, or some other point, and it took them three or four days of time for the case, and we may be in the same boat again. It is too much to ask any man to leave his business and go to the place of trial outside of his city or town. Motion seconded.

Dr. E. S. Muir: Before the motion is voted on, I would like to say that it seems to me any of us would be willing to give up the necessary time for services that are valuable enough to defend a brother practitioner in a case of that kind. It may be wise to adopt this motion. I am not objecting to it, because it may be necessary to do it. It seems to me, however, if a man is paid his expenses it ought to be sufficient. I never heard of anyone objecting to going any distance and staying any length of time, even out of the state, to testify in defense of a brother practitioner, although his time may have been worth considerable to him at home. I do not believe any of the boys would object to it if their actual expenses were paid. Of course, a specialist might demand a fee in addition to his expenses. There may be men who cannot afford to lose the time, and think they should be paid for testifying, but the profession should consider it in the light of rendering a brother practitioner assistance in such a time of need. I do not believe there is any specialist or any general practitioner who would not be willing to give up the necessary time in an exigency of that kind. I think it would be well to consider this motion carefully before voting on it. Personally, I would consider it rather a reflection on our natural cohesion.

Dr. C. L. Scofield: It is an open question as to what effect a motion of this kind is going to have on our defense funds. If I understand the matter correctly, the contributions to the defense fund are fairly well consumed by the defending of cases as they come up. That seems to be one of the things that will have to be considered in this connection, whether or not we are going to raise the defense fund in order to adopt this.

The President: Before there is any further discussion on this motion, I will say that the Secretary, Dr. McDavitt, is in a position to enlighten us more than anyone else. He has had the experience, and he will tell us his experience with our medical experts.

The Secretary: This has all arisen from the Lester case, or out of that case. This was a

very dirty case. Here was a man who had operated in good faith. The patient died. If there was anything that was due the family, it was a suit for malpractice, but that would not satisfy the feelings of certain people in that community, and so an indictment for involuntary manslaughter was brought which was liable to put the surgeon over the road. It was not a plain, straight case of malpractice necessarily; but our committee saw the danger to the profession generally, and fought this case to a finish until now it is cleaned up.

They subpoenaed every doctor in that vicinity as a state witness. They placed on the attorney the necessity of getting expert witnesses from outside. The outcome of it was that it was necessary for these witnesses to come here and give up all their time to the case. The attorney succeeded in getting a doctor from Fergus Falls and an x-ray expert, which was necessary, as it was claimed the patient died from an x-ray burn. They gave all their time, the first time each of them two whole days. We would like to have had authority to pay their expenses, but had none. In the second trial they did not receive any pay. These men had been in correspondence with me, and I told them I had no authority to pay their expenses, but that I would bring the matter before the House of Delegates to see if they could not be paid for their time. When the second trial came they were resubpoenaed. As soon as the case was put upon the court record, it was necessary to resubpoena the other men, and they came out flat-footed, just as you or I would, saying they had already given two long days of their time, and did not know but that we might want them for two or three days, or even five days, the second time; and they said that this Association should pay the bills of experts they did not propose to give any further time without their expenses being paid. The attorney came to see me about it. The trial was about to come on, and I said to him: You take your men; you have to fight this thing to a finish, and I will take the matter of expense up with the House of Delegates. I told him I thought I knew what the action of the House of Delegates would be, and that in the meantime I would stand for those fees personally.

I think the resolution introduced by the doctor, stating that men ought to be paid their expenses when they go outside of their immediate locality and give up all their time, is pertinent. It is not expected to pay men who live in places where

suits are tried, because they can get in and out of court readily. I think it would be a wise procedure if such bills as these, at the discretion of the committee who has charge of this matter, could be paid.

Dr. A. E. Henslin: I want to say that I was not in favor of this motion until I heard the Secretary's remarks. It is only right and proper that this Association should pay the bills of expenses of these men. We do altogether too much work gratis. We lower our standing by so doing. I do not for a moment think that the Council would ask anything of us but what is proper and right, and I trust the action of the Council will be endorsed.

A Delegate: I would like to offer an amendment to the motion to this effect, that the expenses incurred in connection with the employment of experts in the Lester case from the outside community be paid without prejudice as to any cases that may arise in the future. Seconded.

The President. As I understand the original motion, this is hardly an amendment. The motion is to give the Council power to employ experts to give testimony wherever they see fit, and this amendment has no reference to a specific case, as I understand it.

Dr. Workman: Our attorney suggests that he be given power to employ any expert he wishes in a case, and if we can get the man best adapted for it he will not give such testimony unless we pay him, and if we cannot get him to testify we may lose the case. If we had not been able to get these two men in the Lester case it would have reflected on each one of us, and it is necessary to get the man or men as expert witnesses who can win the case for us.

Dr. Muir: I do not wish to be understood as being opposed to the original motion. If the Council think they ought to have that power, then I am in favor of giving it to them. As I said before, I do not believe it will have to be used. However, if the Councilors feel that this power is necessary to perfect their defense in this or that case, I will withdraw any objection I had, and will express myself now in favor of giving them that power.

The Secretary: I would like to say in answer to the remarks made by the last speaker that this is the first time we have ever had such a thing arise, so that you can judge how often it is liable to happen. However, it may happen at any time, and I think authority should be given out-

side of the House of Delegates as that body does not meet until long after it is necessary to decide.

The President put the amendment and declared it lost. The original motion was then put and carried.

Dr. Workman: I would like to make the further motion, that the Council be authorized to pay Dr. Charles D. Harrington \$200 for testifying in the Lester case, and also that Dr. Olaf Th. Sherping be paid \$100 for his services in the same case. They both gave four days' time to testifying in this case, and we must have authority to pay these bills. Motion seconded and carried.

The Treasurer, Dr. Earle R. Hare, presented his report as follows:

#### REPORT OF THE TREASURER

#### FINANCIAL STATEMENT

#### MINNESOTA STATE MEDICAL ASSOCIATION

September 1, 1914, to September 1, 1915

##### RECEIPTS

Dues, County Societies, Thos.	
McDavitt, Secretary .....	\$4,536.00
Interest from bonds.....	100.00
Interest on bank balances.....	99.47
Bonds .....	4,000.00
Balance, cash on hand Sept. 1, 1914	5,376.21
Vouchers 184, 185, 186, unpaid by bank on Sept. 1, 1915.....	165.00
	<hr/> \$14,276.68

##### DISBURSEMENTS

Journal-Lancet .....	\$1,585.17
Thos. McDavitt, office expense....	285.50
Salaries .....	400.00
Bonds .....	4,000.00
Legal expenses .....	2,467.73
State meeting .....	489.91
Printing and stationery.....	155.20
Legislative committee .....	277.30
Delegates' expenses .....	41.00
Treasurer's and secretary's bonds.	32.50
Returned, fees to county societies.	12.00
Safety deposit box.....	5.00
Cash on hand, in bank.....	4,519.37
Cash on hand, in drawer.....	6.00
	<hr/> \$14,276.68

EARLE R. HARE, M. D.,  
Treasurer.

Examined and compared with the secretary's account and found correct.

Audited September 10, 1915.

H. M. WORKMAN,  
J. L. ROTHROCK,  
Committee of Council.

The President: I will say that the Auditing Committee has audited both the reports and accounts of the Secretary and Treasurer, and

found them correct. What will you do with this report? It was moved that the report be adopted. Seconded and carried.

The Secretary read the report of the Committee on Public Policy and Legislation, in the absence of the Chairman of this Committee, Dr. Cornelius Williams, as follows.

The Secretary explained that any action that was taken by Senator Andrews was after consultation and on the authorization of the majority of the Legislative Committee:

#### THE REPORT OF THE COMMITTEE ON PUBLIC POLICY AND LEGISLATION

Your Committee had a somewhat strenuous time during the session of the Legislature last winter. Many questions came before it, and were passed upon, not the least in importance was the matter of whether or not the State of Minnesota should recognize the legality and the right to practice medicine of the Christian Scientists. A bill was introduced by your Committee through the Honorable Senator Andrews, of Mankato, which was not aimed in particular at the Christian Scientist, but affected all persons who might seek to practice medicine in this state, requiring simply that such persons should be required to take the same examination for a license to practice that is required of the members of this society. When the bill came up for a hearing before the Committee of the House it appeared that some three thousand friends of the Christian Science people had been called to the capitol for the purpose of protesting against this bill, and they were there, filling the House from cellar to roof,—men, women, and children. Your Committee regrets very much to be obliged to report that the gentlemen in the House who had charge of our bill came forward, and apologized for having introduced the bill, and withdrew it. Your Committee regrets yet more that the Honorable Senator Andrews from Mankato, while he did not emulate the gentlemen in the House, desired, it was announced either by him, or for him, that the bill should either be re-drawn or withdrawn from the Senate. After a great deal of talk most of the Christian Science people withdrew, and permitted the said Committee to go into the consideration of other matters, namely, the matter of the bill affecting the so-called chiropractics. This bill was happily defeated, largely through the very able efforts of our most efficient secretary, Dr. Thomas McDavitt, formerly of Winona.

The chairman of your Committee very deeply regrets again that the Honorable Senator Andrews of Mankato thought it best to amend our bill, using his judgment, and also upon motion of several medical men from St. Paul and Minneapolis, did so modify the medical bill in his charge as to make it not applicable to the Christian Scientist. It is our understanding that the modification, and amendment made by Senator Andrews was drawn by a member of the staff of the Honorable Attorney-General of Minnesota. When this proposed amendment came to the knowledge of the chairman of this Committee, he sought to obtain from the Attorney-General an opinion as to the legality and constitutionality of the amendment as proposed, but he was unable to do so.



He then applied to the Attorney-General of the United States, and was met with the reply that the Attorney-General's duties did not include the consideration of any matters other than as directed by the President. Personal application was then made to the President of the United States; he referred the matter again to the Attorney-General, and the Attorney-General again answered with regret that he was unable to aid in the matter. The chairman of the Committee, gentlemen, holds that the constitution of the United States forbids the passing of such a law as proposed by the Honorable Senator from Mankato. Be that, however, as it may, the same amendment, almost identical in phrasing, was tried in the Legislature in New York last winter, and met with a most ignominious and deserved defeat, and rebuke at the hands of that august body.

It must be entirely evident, gentlemen of the House of Delegates, that the question of legalizing the so-called practice of the Christian Scientist in this state, as elsewhere, must eventually be met, combatted, and defeated. The members of the State Medical Association owe it to themselves, to their intelligence, owe it to the people with whom they live, owe it to the cause of humanity, and to the best interest of the whole people, to take the stand of men in this matter, and treat it as becomes men of courage, not in any way or in any manner to submit to the stigma of cowardice which must affix itself to those who would attempt to temporize any way in the consideration of so great a question. These words, gentlemen, while directed to the question of the recognition of the Christian Science fallacy are at the same time applicable to the question of permitting or suffering the practice of various other cults that are in themselves a menace and dangerous to the people of the commonwealth, yet do not possess the specific and intrinsic menace, and danger that is carried by those who profess to heal by what is called the art of Christian Science.

There came before the Legislature at its last session a bill for the purpose of regulating the practice of optometry. This bill was originally so drawn that its measures were not to apply to those in the practice of medicine, and hence did not especially call for action from this Committee; but, despite the scrutiny of our able Secretary who had special charge of these matters, while the chairman of the Committee was disabled by grip, some over-zealous individual eliminated the clause that exempted physicians from the operation of this act, so that the law as it now stands permits the Board of Optometry to require an examination of any physician in the state who may choose to fit glasses. Of course, a little fee of about twenty or thirty dollars would also be required of said physician. The proposition before the State Medical Association is this: Shall the physicians of the state submit to this arrogant imposition on the part of the optometrists, or shall those who practice optometry, which is, in fact, the practice of medicine, be required to pass the same examination as that required of regular physicians before said optometrists may be permitted to practice optometry or medicine? It is well known that the optometrists of the country have fed upon such meat that they now declare that they have not only the right, but the ability, to treat diseases of the eye, and to operate upon the eye. Some modest members of that Association would disclaim any such pretention, but the journals devoted to Optometry in the country have shown very sufficient

evidences of intention on the part of the body of optometrists.

Your Committee most respectfully requests that the House of Delegates of the State Medical Association as a whole take action in this matter, and direct the energies of the Association toward the completion of such measures as may be necessary to protect the profession from the onslaught of these pugnacious gentlemen who practice optometry. Pretty soon will come a day when the chiropractics will require the surgeons to pass an examination before a board of chiropractics, and the physician in general work to pass an examination before a board of Christian Scientists. Your Committee would earnestly urge that a campaign be inaugurated to secure the good offices and good-will of not only present but prospective legislators, and if the Association will unite in such measures, there can be no reason to doubt that any reasonable measures may be made to become a law.

This House at its last session ordered the Legislative Committee to present a bill to the Legislature for the purpose of regulating telephone companies. Your Committee did so, but Mr. Minnette re-introduced his bill which had passed a former house, and had been vetoed by the Governor, and, while the chairman believes that the bill which he caused to be introduced was a better bill in many ways than the Minnette bill, it was, of course, impossible to pass our bill. The popularity of Mr. Minnette and his well-known ability carried his bill through, and it was impossible to pass the bill introduced by the Committee. The people in the great cities at any rate have not as yet realized any benefit from the passing of the Minnette bill.

Your Committee strongly urges the House of Delegates to order its Legislative Committee to introduce another bill at the next session of the Legislature, amending the Minnette bill, and making certain features of the bill more definite and certain.

The chairman of your Committee desires to thank the members of the Committee for their loyalty and assistance, but one difference of opinion arose, and that was when all the members, except the President of this Society and the chairman of this Committee, voted for the amendment of our medical bill recognizing the Christian Scientists. The chairman begs to confess that this action was the surprise of a lifetime to him, and that it will probably remain as a unique instance of a divergence of ways of thinking.

CORNELIUS WILLIAMS, M. D.,

Chairman.

The President: You have heard this report. What will you do with it?

The Secretary: I move that it be accepted and placed on file. Seconded and carried.

The President: We will now proceed with general business.

Dr. H. B. Sweetser: I have been asked by the President of the Minnesota State Board of Health to introduce the following preambles and resolution:

WHEREAS, the Minnesota State Board of Health has always stood in the front rank of public health work; and

WHEREAS, this position of the State Board of Health has been largely due to its freedom from politics; and

WHEREAS, the States of New York, Massachusetts, and New Jersey have, within the past two years, greatly enlarged the usefulness of their several State Boards of Health by reorganization of their health work into departments; and

WHEREAS, Dr. Carroll Fox, Surgeon of the United States Public Health Service, after a careful survey of public health administration in Minnesota, advised that the present Minnesota State Board of Health be changed to a department; and

WHEREAS, the general trend through the country is to increase the efficiency of public-health work by extending the functions of public health so as to include all phases of hygiene and preventive medicine, such as industrial hygiene, school hygiene, infant welfare, etc., therefore, be it

Resolved, that it is the sentiment of the Minnesota State Medical Association that the best interests of the people of this State will be served by creating a distinct Department of Health in the reorganization of the various state activities by the Efficiency and Economy Commission.

Dr. Sweetser, after reading the resolution, said: Dr. Jones, who is President of the State Board of Health, is unable to be here. He is sick in bed, and he asked me to present the resolution. The members of the Board are very anxious that the State Board of Health shall not be degraded, and especially that it shall not in this way be brought into the field of politics. If it is made a bureau, the Board will be appointed by the Governor, and as the Governor may change every two years, it may mean that we will have a Secretary of the State Board of Health every two years, requiring a new man to acquire the technical knowledge so necessary for efficient work in this department. He and the Board think it would be a distinct detriment to the State to have such a board reduced to the rank of a bureau, and they think it ought to be a distinct department. They wish to have it left as it is.

I move the adoption of the resolution. Seconded.

Dr. E. L. Tuohy: In connection with this resolution, I would like to know whether it is the intention to enlarge the functions of the State Board of Health to include any more than its present duties.

Dr. Sweetser: I think not.

Dr. Tuohy: Then I can see no possible objection to the resolution. I want to say that there has been a tendency on the part of the State Board of Health to assume more than what we might call its police supervision, notably in the management and control of tuberculosis institutions. I see no more reason why the State Board of Health should mix in the actual conduct of

these institutions than they would in the conduct of insane asylums or the institution at Stillwater. They have plenty to do if they confine themselves to the administration of health laws as they now exist. If this point is made clear, I can see no reason why this resolution should not be passed as it has been introduced. To my personal knowledge, during the past six months an attempt was made on the part of the State Board of Health to assume more direct control or individual control over patients in tuberculosis sanatoria. This principle I feel is not correct, and I fear they would not do any good and only get themselves into trouble. As I have said, the State Board of Health has plenty to do in discharging its present functions.

The motion to adopt the resolution was put and carried.

The Secretary read a communication from the Secretary on Medical Education of the American Medical Association, Dr. N. P. Colwell, relative to the betterment and grading of the different hospitals in the United States, and moved that L. B. Baldwin, A. B. Ancker and Geo. D. Head be constituted as the Committee on Hospitals of the Minnesota State Medical Association. Seconded and carried.

Dr. Workman: I have been requested by the Minnesota State Sanitary Conference to offer the following resolution which was passed by that body:

RESOLVED, That the Mississippi Valley Tuberculosis Conference, now in session at Indianapolis, Indiana, be invited to hold its next annual session at Minneapolis, Minnesota.

I move the adoption of the resolution. Motion seconded by Dr. Nippert, and carried.

The Secretary read the following amendment to Section I, Chapter VIII, of the By-Laws offered last year by Dr. Rothrock, and to amend Article VIII of the Constitution:

For medical advancement and scientific work, the Association shall be divided into two sections, to be designated by the titles of Medicine and Surgery, under which shall be grouped the appropriate subdivisions represented by the special branches of medicine and surgery, respectively.

The House of Delegates shall elect at each annual meeting a Chairman and Secretary for each section.

It shall be the duty of the chairman to preside over the meetings of his respective section, and in co-operation with the Secretary of his Section to arrange the program for the next meeting of the Association.

Dr. Rothrock: It seems to me, we might greatly increase our activity as a State Medical Association by having sections rather than look-

ing after so much executive and legislative business. After all, such an association as this meets very largely for scientific purposes. We have been attempting to consolidate into two days' work a program the time for which is absolutely inadequate. It occurs to me that we might be doing a great deal more work. We have now a membership sufficiently large so the two sections may be carried on at the same time. I believe we can very profitably devote our activities to section work, and I hope this matter of dividing the scientific work into sections will be discussed before a vote is taken.

The Secretary: I would like to ask Dr. Rothrock if he would not be willing to have this amendment added to the By-Laws instead of the Constitution, because he has stricken out the Committee on Scientific Work and placed it under the By-Laws. Under the Constitution, if we ever want to change that, it would take a year to do so, while under the By-Laws it could be changed at twenty-four hours' notice. It belongs to the By-Laws rather than to the Constitution because it is a matter of detail.

Dr. Rothrock: My object was to amend the Constitution as it stands, but personally I have no objection to putting it in the By-Laws.

The President: You are all familiar with the amendment, and it is now open for discussion.

Dr. D. N. Jones: This question came up in our society at one of our meetings, and it was the consensus of opinion of our members that if the scientific work of this Association was divided into sections it would certainly be much better and more satisfactory to the members of the State Association than the present method. I, for one, am very strongly in favor of this amendment, and I think our State Association is sufficiently large in membership to have two sections at our annual meetings.

The President: This is a matter that contemplates a radical change and should be thoroughly discussed.

Dr. J. T. Christison: It occurs to me that, inasmuch as this question has been thoroughly threshed out in the various county societies of which the State Association is made up, it is hardly worth while to occupy the time of the Delegates in discussing it now. I move the adoption of this amendment to the By-Laws. Seconded and carried.

Dr. H. T. Nippert: I now move the adop-

tion of the amendment to the Constitution. Motion seconded and declared lost.

Dr. H. J. Lloyd brought before the House of Delegates an amendment to Section 4, Chapter II, Paragraph 2 and Line 16, that the words "and its attorney" be struck out, and insert the words "applicant shall have right to choose his own attorney, such choice being subject to approval by the Association," which was offered last year by Dr. A. F. Schmitt.

The Secretary: This matter has reference to engaging an attorney for medical defense, and it is the desire according to this amendment to let the local attorney have entire control of every case that occurs in his immediate vicinity. As at present there is no time when the local attorney is not called in by the attorney of the State Medical Association, and he is consulted as far as selecting a jury and getting his advice in reference to matters of detail are concerned, and when it comes to the matter of the lawsuit itself, all matters pertaining to the court trial are necessarily under our attorney, who must, to all intents and purposes, be a specialist in that line of defense. He has entire charge of the case, doing anything and everything that will aid the defendant before the court, although he invariably consults the home attorney. I do not know of a case where our attorney of the Minnesota State Medical Association has failed to do so. We always have the benefit of the advice of local attorneys by consulting with them. If this amendment should obtain, we will not be able to carry on our defense with the funds we have on hand.

The President: Is there any further discussion on this amendment?

Dr. Lloyd: The intent of this amendment is not so much to displace the attorney for this Association as it is to give the physician a right to select his own attorney to take charge of the case. I know of one specific instance where a physician, rather than take the attorney of the State Association, waived the right of defense until he got the consent of his local attorney to defend his case. The local attorney was very familiar with the local conditions for that reason, and this amendment is based on that fact. I believe a good many men would prefer to have their own attorney take charge rather than the attorney for the State Association.

Dr. Alexander Barclay: Anybody who has had any experience with this line of work would make a serious mistake by voting for this amend-



ment. Our State attorney is an expert along this line of business, and he knows it much better than the ordinary local attorney throughout the state. If we allow local attorneys to take charge of such cases, they would charge the Association whatever fees they felt like. Furthermore, as Dr. McDavitt has said, our funds are not sufficient to stand any such drain as that. I hope the amendment will be voted down.

Dr. Muir: I am opposed to the adoption of this amendment. I think the Secretary has given us reasons sufficient to make us all of one mind. The defense cannot be carried on for four times the fees that it is being carried on now, and it simply means we would have to pay more for the defense in cases of this kind than we do at the present time. As the Secretary has stated, local attorneys are consulted and undoubtedly the clients' wishes are considered in the matter of such counsel. The passage of this amendment would be a mistake. It would mean simply the undoing of our defense from the foundation.

Dr. Scofield: I move that this amendment be indefinitely postponed.

Dr. Sweetser: Would it not be better to withdraw that motion, and make another one to the effect that we do not concur in this amendment?

Dr. Scofield: I so move. Seconded and carried.

The Secretary read the report of the Committee on Necrology, as follows:

Your Committee submits the following report:

August 31, 1915.

#### REPORT OF COMMITTEE ON NECROLOGY

TO THE MINNESOTA STATE MEDICAL ASSOCIATION:

Your Committee submits the following report: Early this month I wrote to the thirty-nine secretaries of the counties and other medical societies of the state, requesting reports of deaths in their respective societies and giving facts of interest in the lives of such deceased members. I received prompt replies from nearly all. Those reporting deaths follow:

Carlton County.....	Dr. Wm. G. Dolan
Hennepin County.....	Dr. A. B. Cates
	Dr. C. H. Bradley
	Dr. A. J. Coria
Ramsey County.....	Dr. E. M. Lundholm
St. Louis County.....	Dr. W. F. McCabe
	Dr. C. A. Stewart
Winona County.....	Dr. D. A. Stewart
Watonwan County.....	Dr. Wm. H. Rowe

A. T. CONLEY, M. D.,  
Chairman Committee on Necrology.

The President: If there is no objection, this report will be received and placed on file. Hearing none, it is so ordered.

Dr. Scofield: It seems to me the adoption of the amendment offered by Dr. Rothrock leaves us considerable work to do in the matter of providing programs for next year. As I understand it, the amendment provided that the chairmen of the Sections are to be appointed by this House of Delegates.

The Secretary: By the incoming president.

Dr. Nippert: I move that the incoming president appoint these chairmen and secretaries of the Sections for the next meeting. Seconded.

Dr. Workman: I think this matter should come up at the time when other officers are elected, and then the House of Delegates can do as it sees fit at that time. I do not think it should be done now.

The President put the motion, and, as he was in doubt as to the result, he called for a rising vote, with the result that there were fifteen favoring the motion, and seventeen opposed to it. The motion was declared lost.

The President: Is there any further business to come before the meeting?

Dr. J. A. Gates: The report of Dr. Williams, a member of the Legislative Committee, was accepted and placed on file. I do not know whether there is any part of that report that needs to be taken up at this time or not, but I do know that if you ever intend to wield any influence in the State Legislature, the time to do so is before our representatives and senators are elected. When doctors go to the Legislature and hang around, they are looked upon as a nuisance, and the legislators believe they are trying to protect themselves against a lot of poor, innocent people who are trying to make an honest living. Every member of this Association should make it a point to see his representatives and senator when they are candidates for office, and not after they have been elected. Make your candidates promise that they will do what you want before they are elected. If you do not do this, and wait until they are elected, you will get very little. If you want any legislation, you want to be there and get busy at once. (Applause.)

Dr. Sweetser: I would like to offer the following amendment to the By-Laws:

That in the future the Surgical Section and the Medical Section shall elect at one of their sessions their chairmen and their secretaries.

Seconded. (Amendment lies over until next meeting of the House of Delegates for action.)

The President: Is there any further business to come before the house?

Dr. W. L. Beebe: As a member of the National Legislative Council, I desire to present the following report:

REPORT OF THE REPRESENTATIVE TO NATIONAL  
LEGISLATIVE COUNCIL

*Mr. President, and Members of the House of Delegates:*

As your representative to the Committee on Legislation of the A. M. A., I have very little to offer that you are not familiar with, or doubtless were familiar with at the time of the publication of the proceedings in the *Journal of the A. M. A.*, and in the *Bulletin*. With such men as many of the ex-presidents, and many of the leading men of the country, in your profession, taking sufficient interest in the cause of medical education, medical legislation, and medical colleges, to take from their daily work at least a week of their time to attend these annual convocations, you may well know that something in the way of advancement along all these lines will be accomplished.

The great improvement that is so apparent in the way of organization in your profession is largely due to these meetings. It is true that a lamentably small number of medical men are allied with the A. M. A., or with medical organization of any kind. Nearly fifty per cent of the 140,000 men licensed to practice medicine in their respective states, have not as yet been converted to the necessity or advisability of joining their county societies, and thereby become allied with their state and national associations. And yet, it goes without saying, those who have sufficient intelligence and sense of duty to get into the harness and do their part in keeping up their local and state and national work, are the men to whom you and the public are indebted for the advancement that we all so well know has taken place in the last few years. Minnesota stands well in the front line, being one of the first states to accomplish anything along the line of licensing physicians, one of the first to increase the requirements necessary to admission to its medical schools, one of the first to insist on the necessity of hospital training after graduation, and the first to attempt postgraduate work, pointing to or aiding the medical student in specializing, thus offering any medical graduate, in this or any other country, an opportunity to avail himself of the so-called Fellowships.

It is unnecessary to point to the efforts of the organization to whose hospitality we are now indebted for this meeting, to call attention to this fact,—that, in no small measure, to their efforts is due the fact that Minnesota is on the map so far as medical advancement is concerned. And right here permit me to give expression to the thought which you all appreciate, that we all take off our hats and make most respectful bows whenever the names are mentioned of the greatest medical organizers on this green footstool of the Almighty,—Drs. W. J. and Charles H. Mayo.

This year in our meeting of the National Committee on Legislation were such representatives of the profession in your state as the Dean and the Assistant Dean of our Medical School, the Secretary of the State

Board of Health, the Secretary of the State Medical Association, the Secretary of the State Examining Board, the Professor of Ophthalmology, the Professor of Surgery of our Medical School, and, as is always the case in any medical convocation anywhere in the United States, some representative of the Rochester institution, besides quite a number of lesser lights.

You all well know that whenever you are present at any of these meetings, or when you read of their proceedings, you are never without a feeling of thankfulness or gratification that you are fortunate enough to be practicing your profession in a state that stands well up in the front line of those attempting a betterment of medical matters throughout the entire country. I ask myself each year, Do these annual meetings accomplish enough to warrant us in devoting the time and expense necessary to the work? But there is never any doubt on this point after the meeting. We return to our homes, saying, "Well, that meeting was something worth while: something was really accomplished."

The National Committee is most fortunate in having as its secretary a man who is largely responsible for the success of each meeting, a man who makes up the program which renders the meetings so successful, a man who knows, and can tell in less time than any other man, the exact status of legislation in every state in the Union.

I cannot close this brief report without calling attention—as I did in my last year's report—to the advisability of your reading the reports of these meetings as you see them in the *Journal of the A. M. A.*, and in the *Bulletin*. The most interesting summary of this entire subject to be found anywhere you will find in a paper by our worthy Secretary, Dr. Frederick R. Green, which he delivered this year at the meeting, and in a similar paper read before the Utah State Association. Kindly permit me a short quotation from him on the Utah occasion:

"The entire relation of the state to the people and of the medical profession to society and to organized government, whether of the city, the state, or the nation, has changed entirely during the last forty years through the development of our knowledge regarding the causes of disease. The moral and legal justification for state activity for the prevention of disease lies, not in the demands of the medical profession, but in the fact that it is the duty of the State to protect its citizens against dangers from which they cannot safeguard themselves.

"The justification for public education is the prevention of disease and the prolongation of life. Such objects need no argument. It is necessary, however, to convince the mass of the people of the possibility of their accomplishment.

"When we look over the history of public health legislation during the last fifty years it is difficult to say whether surprise, indignation, or amusement is most predominant. The misunderstandings, antagonisms, and conflicting efforts on the part of physicians and the public might well be cause for amusement were the results of such misunderstanding not so serious. Prior to the middle of the last century there was practically no recognition of the responsibility of society and of the State in the prevention of disease. The State was in the same position as the medical profession; it had nothing to tell the people; it could only wait until a man or woman was stricken with disease, and then care

for them, if they were without other protectors. Late in the '60s a growing conception regarding the duties of the State toward its citizens began to take form. In 1869 Massachusetts established the first state board of health. California followed in 1870. At various periods since that time each State has created some kind of health organization. Some began as quarantine bodies, some as examining bodies, some as state boards of health *de novo*. The United States Public Health Service has recently issued an interesting summary of the history and general condition of our state health organizations. A careful reading of this study must impress every one with the amazing diversity of method and machinery, as well as the large amount of waste effort, required to secure the creation and perpetuation of these boards. Examination of the proceedings of the Association from 1870 to 1877 will show that the principal force in their creation was the American Medical Association, and that the most important factor in securing the establishment of these boards, in maintaining them, and in performing their functions, was the medical profession. Now, the object of establishing these boards was, and is, to prevent unnecessary sickness, reduce the death-rate, and make the people of the state healthier, happier, richer, and longer lived. If there is any work which is more unselfish, self-sacrificing, and clearly for the public good, history does not record it. Yet the principal difficulty during the forty-five years which have elapsed since Massachusetts passed her first law, has been to convince enough of the people of any state of the desirability of such work to secure its establishment and development. Certainly, when concerted and continuous effort is necessary to persuade people to allow themselves to be saved from sickness and suffering, and when the facts in the case are as readily demonstrable as the figures of the multiplication table, something must be seriously wrong with the manner in which this subject has been presented to make such a situation possible. When the history of the last forty-five years is reviewed, it is not difficult to see why the task has been a difficult one.

"The greatest single mistake has been the belief, common in the medical profession for the last forty years, that sanitary reforms could be accomplished by the passage of laws. This is all the stranger in view of the fact that a clear and definite note of warning was struck early in this period by one of the leaders of medical thought of his day. In 1877, at the Chicago session of the American Medical Association, Dr. Stanford E. Chaille, of New Orleans, presented a paper on 'State Medicine and State Medical Societies,' which to the student of the development of state medicine in this country must ever remain as one of the clearest and most far-sighted papers ever presented before the Association. Discussing the necessities of systematic education of public opinion as a necessary precedent to the enforcement of sanitary laws, Dr. Chaille says:

"It requires no great wisdom to enact laws, but great wisdom to enact on many subjects laws which can be enforced. The history of legislation is glutted with the enactment of laws which not only failed to accomplish the object intended, but which did accomplish a very different one, often bringing the object sought for into public contempt. Rarely do writers on state medicine realize the truth of the lessons taught by students of the philosophy of law-making, that there is a class of subjects in regard to which laws can be enacted in

advance of public opinion without fear of bad results; but that there is another class of subjects in regard to which no laws can successfully precede their public sanction, and, if enacted, violation and contempt for them will ensue. Unfortunately, to this class belong such subjects as the regulation of the practice of medicine, compulsory vaccination, registration of vital statistics, etc., and their satisfactory disposal cannot be hoped for until an enlightened and organized medical profession exercises its influence on public opinion.'

"In spite of this clear statement of the problem, we have, as a profession, placed far too much confidence in legislative enactment as a means of social and sanitary improvement. This is partially due to the prevailing popular idea that the passage of a law in some way accomplishes something, and that a law necessarily contains within itself the power for its own enforcement. A law is not a force, and never can be. A law is simply a rule of action, a statement of the way in which a force acts, or should act. Now, in this country the only possible force is public opinion, the will of the majority. It has come to be recognized as axiomatic that no law which is not approved by a majority of the people can be enforced. As Dr. Chaille has clearly stated, the important thing is to convince the people and to mold public opinion. As soon as this is done, necessary laws will follow as a natural consequence. But with a convinced and aroused public only a minimum of legislation is necessary. Public opinion can accomplish as much, if not more, than legislation in some lines, leaving to the law-making powers only the necessity of enacting, and to the administrative officials the necessity of enforcing, so much legislation as may be necessary to make public opinion effective.

"But there is another and more serious consequence of the enactment of public health laws without the support of public opinion. Not only are laws so obtained generally ineffective, but their passage encourages the feeling on the part of the public that health legislation is a matter which is in the hands of physicians, and that the people have no responsibility on this subject. It is an axiom in physiology that an unused function always undergoes atrophy. The more physicians relieve the people of the responsibility for securing proper health laws, the greater will be the difficulty in making them realize that they have any responsibility. We have, through shortsightedness in the operation of free clinics in our large cities, pauperized a large proportion of the people. Let us beware lest we pauperize them mentally by relieving them of the responsibility of protecting themselves from disease.

"Not only has the growth of knowledge altered the relations of the State and the individual, but it has no less radically altered the professional relations between physicians and patients. The responsibility of the physician was formerly limited to the individual patient. This is no longer the case. The present-day physician wants to know, not only what is ailing his patient, but also how his patient acquired the disease, whether any other persons are exposed to contagion from the same source, whether the patient himself is a danger to his friends and relatives, and whether the disease will spread throughout the entire community or can be confined to the single case in hand. He owes a responsibility, not only to his patient, but to the community. He is not only the caretaker and medical adviser of the sick; he is also the guardian and protector of the well. Each



practicing physician is, or should be, a sanitary policeman for the protection of the community against contagion. In a few cases, notably state boards of health and in a few of our larger cities, men especially expert devote all of their energy to sanitary police work as public health officers, but this does not and cannot take the place of the constant vigilance and co-operation of the mass of the medical profession. Yet, because in previous generations the relations of a physician and his patient were entirely personal, and because compensation was based on these personal relations, the public health police work of the medical profession, done for the sake of the community, is largely unrecognized and entirely uncompensated. In other words, physicians as a class have recognized their duty to the community before the community has recognized its duty to physicians. Careful reflection will, I think, sustain the conclusion that in this situation is found an explanation of many of the economic difficulties of the medical profession at present. That it is a transitory condition and one which will be remedied in the future admits of little doubt.

"Another error into which we have fallen as a profession is the tendency to regard the medical profession as a divinely authorized class, whose sacred and distinctive function is the protection of the people, either with or without their consent. It is difficult to understand on what rational basis such a belief can rest in a scientific profession like ours. The medical profession is recruited from the same class as that which furnishes the lawyers, judges, ministers, teachers, and business men of our country. The men who go into medicine are neither wiser, more unselfish, more upright, nor more infallible in their judgment than those who make up any other class of professional men. Why should we regard ourselves as of superior mold, or why expect our opinions or views to be accepted on any different basis from those of other men of equal intelligence, except in so far as we are able to justify our judgment? Yet too often medical organizations, as well as individual physicians, have taken the position that they were the courts of last resort; that it was their special function to dictate the terms of public health legislation, and that it was the duty of the public to accept their decisions and acquiesce in their judgment. Now the average American, while willing to do anything that he knows to be for his own benefit, is impatient of restriction, and especially of restriction which he cannot understand. He resents paternalism and dictation, and objects to having any class or sect try to force him to do anything for his own good unless he is convinced that it is necessary and desirable. Even then he wants to be shown that the inconvenience of conforming to the restriction will bring him benefit greater than the inconvenience brought about by not conforming to it. If you have any doubt as to the universality of this feeling, or think that it is only held by laymen, wait until some bill is introduced into your legislature that imposes some kind of restrictions on physicians themselves, and then notice the result. You will generally hear a roar of protest that can be heard throughout the state. Yet the average layman has just as much objection to being regulated as the physician has. The general conclusion to be drawn from this situation is, that all proposed public health legislation should be plainly necessary and justifiable; that interference with personal liberty should be the least possible amount necessary to produce the desired result; and that in every case where such interference is necessary it

should be done in the least disagreeable way possible, and the reasons for the necessary restrictions should be carefully and clearly explained to the public before their enactment in the form of legislation is sought. Any subject which cannot be explained to the satisfaction of the average citizen had generally best be left out of legislative plans. Science is simply systematized knowledge. If we know a thing we can convince any reasonable person of the truth of our proposition.

"The use of the so-called 'practical political methods' to secure the passage of public health measures has already been mentioned. The last twenty-five years has been a period of special privileges and of many legislative abuses. Instead of legislation being determined by considerations of public interest, it has been too often a matter of barter and sale, or of co-operation between representatives of special interests. A legislator representing one interest has voted for measures on condition that the friends of these measures would in turn vote for his measures. Log-rolling, wire-pulling and ring-rule have, at times at least, characterized many of our state legislative bodies. The appeal to physicians, sometimes from our own ranks, has been the enticing one to be 'practical politicians,' and play the game. The statement has been made repeatedly in medical organizations that the only way to secure desired legislation was to follow the tactics used by all so-called 'successful' politicians, and exercise such influence as could be exerted, regardless of the manner in which it was secured. This argument has been particularly attractive and seductive because the promoters of public health legislation knew that their plans were for the public good. Too often they have reasoned: 'What harm will befall if we do use objectionable methods, so long as the object is the public good and the protection of the people?' The argument that the end justifies the means has too often been used to advance public health legislation. Yet the absurdity of such a method is evident. When measures for the public good are proposed, the people themselves are often indifferent. They do not understand the importance of such legislation. Now, instead of making the people understand it so that they will demand and secure sufficient protection for themselves, it is sometimes seriously proposed to secure the passage of a law without attempting to arouse public support, but by the use of political influences. There is undoubtedly a legitimate field for legislation, and even for compulsory legislation, in bringing pressure on the indifferent, ignorant or unruly minority in enforcing police measures which the majority of the people have decided are necessary for the public safety. But the folly of expecting any permanent good to result from the adoption of legislation placing restrictions on the public for its own good when the majority of the public are not only unconvinced of the necessity of such restrictions, but even unaware of their purpose or object, needs only to be stated to be appreciated.

"Let it be clearly understood that any criticisms of so-called practical political methods should not be regarded for a moment as questioning the right and the duty of the physician as a citizen to take part in and participate in public matters and legislative bodies to the extent of his ability. The physician today, as a rule, is much better qualified than the average citizen to sit as a member of legislative and deliberative bodies. His special knowledge is of particular value to the State or the municipality. His participation in political and legislative affairs along proper lines can only result

in good to society. There is a wide field for the physician to occupy as a citizen and a man of affairs, but it does not lie in the realm of machine politics. Neither is there any good reason why the physician as a citizen should not do everything in his power to secure and to support good candidates for any position, legislative or administrative. What I am contending is that political methods cannot be made a substitute for public education on scientific subjects.

"Probably the weightiest criticism which can be brought against the medical profession in its public relations during the last forty years, however, is its failure to adopt any definite, permanent, and constructive program in its efforts to secure adequate public health legislation. We have asked the public to accept us as scientific authorities, and we have not been scientific ourselves in handling this problem. There has been little effort made to separate the essential and fundamental from the non-essential and incidental, to secure first the passage of those measures which would lay the foundation for an efficient health organization which is closely related to the rest of the State government, and to develop the powers, functions, and activities of such a department. Closely related to this is the occasional advocacy by individuals or organizations of laws on fads or sensational topics. Enthusiastic members of the state legislative committees, especially interested in subjects interesting, but of comparatively little relative importance, push their claims for consideration, and these subjects, because they are sensational, are taken up by the newspapers to the exclusion of far more important questions. Abundant illustrations of this tendency can be found in the history of the last forty years. Such legislation is often commendable, if the State and the public are ready for it, and if it does not crowd out more important subjects; but as scientific men we should not allow ourselves to be unduly influenced, either by enthusiasts or by temporary public interest."

W. L. BEEBE, M. D.

The President: Unless there are objections, this report will be received and printed in the proceedings.

On motion, the House of Delegates then adjourned until Friday, 10 a. m.

## SECOND SESSION—FRIDAY, OCTOBER 1, 1915

The House of Delegates met at 10:00 A. M., and was called to order by the President. The minutes of the previous meeting were read, approved, and ordered placed on file.

The first order of business being the election of officers, the following officers were nominated and declared duly elected:

President, Dr. John W. Little, Minneapolis; First Vice-President, Dr. J. J. Donovan, Litchfield; Second Vice-President, Dr. A. C. Rogers, Faribault; Third Vice-President, Dr. C. O. Wright, Luverne; Secretary, Dr. Thomas McDavitt, St. Paul; Treasurer, Dr. Earl R. Hare, Minneapolis; Councilor for the First District,

Dr. C. E. Dampier, Crookston, for 3 years; Councilor for the Fourth District, Dr. R. J. Hill, Minneapolis, for 3 years; Councilor for the Seventh District, Dr. F. A. Dodge, LeSueur, for 3 years; Delegate to the American Medical Association for 2 years, Dr. W. L. Beebe, St. Cloud; Alternate for 2 years, Dr. George D. Head, Minneapolis; Alternate for 1 year, Dr. Harry P. Ritchie, St. Paul.

The President stated that the incoming President would appoint the Committee on Public Policy and Legislation.

Under "unfinished business," Dr. Rothrock moved that the duty of appointing the chairmen of the Surgical and Medical Sections, also the secretaries of these sections, be delegated to the incoming president. Seconded and carried.

The Secretary read the amendment offered at a previous session by Dr. Sweetser, to the effect that the Sections on Surgery and Medicine shall elect their own officers. This amendment on being put to a vote was declared lost.

Dr. Workman moved that the Council be empowered to pay the expenses of this session of the Association and the expenses incurred during the coming year. Seconded and carried.

Dr. R. J. Hill moved, that in view of the recommendations made by Dr. Rodman, President of the American Medical Association, in his address last evening, the House of Delegates of the Minnesota State Medical Association favor a national board of examiners. Seconded and carried.

Dr. Crume extended an invitation to the Association to meet in Minneapolis in 1916. It was moved that the invitation be accepted. Seconded and carried.

Dr. Tuohy extended an invitation to the Association to meet in Duluth in the year 1917.

Dr. Tuohy moved that a committee be appointed for the coming year to consider the question of whether it would or would not be a good thing for the Association to decide upon a central place in which to hold the meetings of the Association permanently. Seconded by Dr. Hill.

Dr. Scofield moved to amend that the matter be referred to the component societies for consideration during the coming year.

The amendment was seconded, accepted, and the original motion as amended was put and carried.

As there was no further business to come before the meeting, on motion, which was duly seconded, the House of Delegates adjourned *sine die*. THOMAS McDAVITT, M. D., Secretary.



## PRESIDENT'S ADDRESS: TEAM WORK

BY JOHN T. ROGERS, M. D.

ST. PAUL

"The purpose of this Association shall be to federate and bring into one compact organization the entire medical profession of the State of Minnesota, and to unite with similar societies of other states to form the American Medical Association; to extend medical knowledge and advance medical science; to elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws; to promote friendly intercourse among physicians; to guard and foster the material interests of its members and to protect them against imposition; and to enlighten and direct public opinion in regard to the great problems of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease and in prolonging and adding comfort to life." (Article in By-laws and Constitution.)

This Association has an active membership of approximately fifteen hundred. The power and influence for good of such a number of educated, intellectual, vigorous, energetic, and well-trained practicing physicians and surgeons, is beyond compute.

Are we as individuals doing our full share toward serving the purpose of this Association? Are we, as an Association, doing our full duty in aiding the American Medical Association in its excellent campaign of popular education? Are we, as an organization, doing our full share and using our best efforts in influencing and directing proper medical legislation? Are we, as an organized body of educated men, voters and citizens, making use of our opportunities to maintain and elevate standards of medical education in our State University? Are we energetically, actively and vigorously encouraging and aiding our State Board of Health in its fight against tuberculosis? Should we not at this time take a decided stand for placing venereal diseases in the same category with the other communicable diseases? Are not the immediate and remote effects of these diseases more appalling than are those of all other communicable diseases combined?

Should we not at this time put ourselves on record as a united profession against the continued sale and manufacture of alcoholic intoxicants? Should we not at this meeting put into active operation some means of ending or controlling a long standing stigma on the profession,—medical expert testimony?

These are a few among many of the problems and perplexities of our profession which we are called upon to discuss—to solve, if possible.

The study of political economy in its relation to public health and medical legislation, if not a lost art, is a sadly neglected one. No other learned profession refuses, as does the medical profession, to assume the responsibilities and duties of citizenship. Indifferent to state and local politics, we expect politicians to be fair and unbiased in handling medical laws.

It is time for us, as an Association and as component bodies of this Association, to take a more active interest, not only in the election of State and National officers, but in the selection of candidates for office. Who better than the medical man is in a position to judge of the fitness and the qualifications of candidates for any public office? As an intellectual body of men, close observers, students of human nature, and coming daily into intimate contact with our fellow men, we can at least determine whether or not our legislators have sufficient education and such qualifications of statesmanship as will fit them for the position of law-makers.

One often hears a physician publicly proclaim that ours is the "only altruistic profession." Who believes him? The masses scoff, and members of the other learned professions smile.

Only those who are familiar with the traditions of medicine,—its aims, ambitions, and ideals,—are in a position to judge of the correctness of such an assertion. Can we, as an Association, not devise some means toward educating and instructing the public to the end that they will have a better understanding of the altruistic nature of our profession? To accomplish this, would it not be a step in the right direction for each component society of this Association to set apart one meeting each year for the discussion of subjects of interest,—popular subjects,—dealing with the relation of medicine to the other learned professions and occupations,—subjects which could be discussed by lawyers, ministers, teachers, pharmacists, dentists, and other educated citizens? All this to the end that we may be better understood, and, being better understood, by so much will our influence for good be increased.

Along these lines and for the accomplishment of the same purpose, would it not be a good investment, and money well spent, for this Association to issue annually one edition of THE



JOURNAL-LANCET devoted entirely to subjects of popular interest, dealing with the traditions of medicine and the history of the medical profession, with subjects concerning which there is so much misapprehension on the part of the public concerning the medical profession, and that this edition be mailed to as many citizens of the state as is possible with the means at our command?

During the past year our Federal Government, showing renewed signs of a growing paternalism, much to be desired, has put into effect the "Harrison Act," regulating the production, importation, manufacture, sale, dispensing, compounding, or giving away of opium or coca leaves, their salts, derivatives, or preparations,—a law which has already accomplished a wonderful amount of good, a law to which the medical profession and pharmacists have given their conscientious support. One feature of this law that may lead to confusion, if not evasion in this state, is that a certain cult, not legalized prescribers of medicine, are allowed a license to prescribe opium and cocaine. It should be the duty of each member of the profession to influence his Congressman and Senator to correct this evident conflict between a Federal and a State law.

#### THE LIQUOR QUESTION

The medical profession has too long delayed taking a stand on the question of alcoholism and the sale of intoxicating beverages. It is a live issue of the day, and one which will not and should not down. The time is now ripe for this body to face the issue squarely, not from a political or economic standpoint, but purely as a medical and prophylactic measure. In my opinion we are justified in advocating national control, if not national prohibition, of the sale and manufacture of intoxicating beverages. Its baleful effects are more widespread and far-reaching than that of all other poisonous drugs, responsible, directly or indirectly, for poverty and misery, responsible, directly or indirectly, for the majority of criminals. It becomes of paramount importance to the medical profession to use its influence in the vigorous campaign of enlightenment of the public from a scientific standpoint. If further argument were needed to convince you of the necessity for immediate and vigorous action, one has only to point to our insane asylums, almshouses, hospitals, institutions for defectives, and our slums. I would suggest, there-

fore, as a means of accomplishing a more widespread dissemination of scientific knowledge on the effects of the use and abuse of alcohol, that each component society of this organization set aside one meeting to be devoted to a symposium, dealing with all phases of this subject.

#### MEDICAL LEGISLATION

The question of medical legislation is always of prime importance. Such legislation is sought for the purpose of preventing imposition, both upon the people and the medical profession, and to improve the personnel, as well as to advance the standards, of medical men.

In our own state it was not until 1882 that it was necessary even to have a diploma, except that the feelings of the community were better satisfied if such parchment was owned. Our first law furnished a license on a diploma. No metes or bounds were set as to what a diploma meant as to qualifications and efficiency, but it was a beginning. The law of 1887, under which we are now working, has had a tremendous influence on the advancement and maintenance of medical standards, not only in this state, but throughout the United States.

Minnesota was the pioneer and most progressive state of the Union in forming laws regulating the practice of medicine, and the fact that no material changes have been made in this law, and that in all its legal batterings it has come out unscathed, demonstrates that some master minds were responsible. A few amendments have been made, but they have added strength in that they have increased educational qualifications.

Several years ago someone in authority placed on the statute books the "Itinerant Law." Under its provisions, any licensed practitioner may go to the Secretary of State, deposit three hundred dollars, and the officer certifies to the Secretary of the Board such receipt and the Secretary must furnish the individual an "Itinerant License" good for one year. This gives the party the privilege of going from place to place in the state and practicing. This has resulted, as would be expected, in much irregular work, unprofessional advertising, and downright quackery, seemingly with the lawful sanction of the State, but this is only apparently so, as these "Itinerants" are still amenable to the revoking clause in the law. It should be the duty of our Committee on Medical Legislation and of the profession in general to have this law repealed as soon as possible.

The question of promoting proper legislation and of preventing improper legislation, is of the utmost importance to our profession. A most formidable attempt was made last winter by a cult composed of ignorant, unqualified, and uneducated individuals to pass a law legally qualifying them to impose on the credulity of the public. The absurdity of their so-called pathology of all diseases was only equalled by the dense ignorance, the profound egotism, and the nerve of the individuals who fathered the bill. They kept a large lobby at work, and seemed to have and to spend plenty of money; and it was only by the most strenuous work that the bill was kept from coming to a vote. This required constant watching until the end of the session by your Legislative Committee. A body of citizens from Minneapolis, having seen the suffering resulting from the ignorance and criminal efforts of another cult in treating contagious diseases in an unscientific manner, attempted to pass a law making this cult amenable to the same restrictions that bind all practicing physicians in the state. Hundreds of the converts of this cult presented themselves the night the hearing was given on the bill in opposition to it, and the Legislature was so impressed that a further hearing was not favored, and the bill was withdrawn. The public can still have their contagious diseases treated by prayer and laying on of hands without quarantine unless the health authorities interfere.

These matters are mentioned to bring before the medical profession some difficulties experienced by your Legislative Committee in their efforts to influence proper medical legislation. It seems to be instinctive in the mind of the average legislator to oppose any measure desired by the medical profession, and the cry of "medical freedom" is used by all illiterates and quacks to justify anything that will permit them to prey upon the credulity of the public.

The question of medical defense is a live subject of the day in our profession. Since the compensation laws went into effect malpractice suits have increased in nearly every state. The ambulance-chasing lawyer, having his fees cut down by this legislation, seems to be trying to recoup from the medical man. The increase in malpractice suits is a real danger to our profession. It is a problem which we have to solve. The by-law under which we are working was carefully drawn by lawyers of high standing and so far, in a large majority of cases, has given entire sat-

isfaction. The greatest friction we have experienced is, first, that the Association must have complete control of the case,—in other words, it will not divide any responsibility with any insurance company; second, it does not, and should not, pay judgments. Both of these matters were thoroughly considered when the by-law was drafted, and the attorneys gave the opinion that the wording as it exists was the only feasible plan for the Association to adopt. Up to the present time all suits have been successful,—that is, no judgments have been given against our members. In several cases there has been a divided jury. The most unfortunate experience we have had was in one case where one of our members was indicted by the grand jury for involuntary manslaughter, on account of a death after an operation for appendicitis, with a penalty of fine or imprisonment. One trial has taken place, and the jury stood ten to two for conviction, the ten being all of one nationality. If criminal indictments can be made to take the place of civil malpractice suits, and all malpractice cases be handled by county attorneys, at the expense of the county, the position of the medical practitioner is certainly serious. The dangers cannot be exaggerated, and all such cases should be fought to a finish. When prosecuting officers and the press can influence public sentiment to such an extent that an unfortunate ending in the treatment of a case where a doctor's best judgment has been used, can be the occasion for a penitentiary sentence, the liberty of the profession is endangered, as it is merely a beginning in unjustifiable coercion.

The report of our attorney shows a tremendous amount of work done since September, 1914. This work under the present management has been of the highest order of efficiency. In my opinion every encouragement should be given, and more funds appropriated for the medical defense feature. There should be no interference with this department of our Association. On the contrary, if the present dues are not sufficient to meet the demands necessary for medical defense, I would suggest that an increase of the dues be made.

#### MEDICAL EXPERT TESTIMONY

Medical expert testimony has for many years been a source of severe and just criticism of the profession on the part of the laity, and censure on the part of the bench and the bar. Sporadic efforts have been made from time to time to change the existing situation.

In 1873 Dr. W. W. Mayo, in his Presidential Address, suggested the appointment of experts by the courts. So far as history relates, no action was taken on this suggestion. Again in 1875, Dr. N. B. Hill in his Presidential Address suggested that one expert be selected by each party, and the third by the court, and the decision of these be accepted as final. The records of our Association do not show that any action was taken along the lines of this suggestion. It now falls to my lot to again bring this matter before you, and to suggest that a committee be appointed by my successor to confer with the State Bar Association with the view to devising some means by which the stigma of medical expert testimony may be removed from the medical profession.

#### MEDICAL EDUCATION

A brief review of medical education in the State of Minnesota, leading up to the present situation in the Medical Department of the University of Minnesota, may prove of some interest to this Association.

In 1871 the first organized effort to teach medicine was made at St. Paul in the foundation of the St. Paul Medical School (preparatory), with eight teachers in its faculty. A four-months course of lectures was given simply as a preparation for work in the older eastern colleges.

In 1872 a similar institution was founded in Winona. Both the St. Paul and the Winona institutions went out of existence in 1878-79. At that time the St. Paul Medical College was organized, and became the Medical Department of Hamline University with a two-year course, which they advanced to three years. This was the first American Institution to announce a four-year graded course. The course consisted of twenty-six weeks, while in the older colleges the courses were eighteen and twenty-two weeks.

In 1881 the St. Paul College was enlarged by taking into its faculty more Minneapolis men; and it became the Minnesota College Hospital, located in Minneapolis. At about this time, 1882, Dr. Charles N. Hewitt, of Red Wing, proposed to the Board of Regents of the University to organize a Medical Department of the University. In 1883 this proposal was accepted, and a non-teaching and purely examining body of five men constituted the first faculty. The Legislature in 1883 passed an act to regulate the practice of medicine, requiring all physicians to be licensed under the act, and conferring upon the faculty of medicine in the University the function of an

examining board with power to approve and accept diplomas of recognized colleges as evidence of fitness for practicing, or to require the applicant having a license to be examined by the Board. This was the beginning of medical examiners boards throughout the country and the forerunner of our present State Board of Medical Examiners.

In 1883 the College of Physicians and Surgeons, of Minneapolis, was organized. Later this became a department of Hamline University.

A three-year course of six months each was required for graduation. During its early period of activity, this college conferred no degrees, but referred its students to the State University Board of Examiners.

In 1885 the St. Paul members of the Minnesota College Hospital resigned, and the St. Paul Medical School was again organized. The Minnesota College Hospital was reorganized, its name being changed to the Minnesota Hospital College, of Minneapolis.

In 1887 the Legislature passed a new medical-practice act, creating an independent State Board of Medical Examiners, the first of its kind ever put into practice in the United States. This law has been a model for other states; and to its influence, more than to any other one thing, can be ascribed the elevation of standards of education throughout this country.

In 1888 the St. Paul Medical College and the Minnesota Hospital College surrendered their respective charters, and became the College of Medicine and Surgery of the University of Minnesota, with a faculty of twenty-nine, Dr. P. H. Millard being its Dean. Its course of lectures consisted of a term of three years of six months each. For that period its preliminary requirements were considered high.

In 1890 the college course was extended to three years of eight months each; in 1894 to four years; and later to six years. From this time until the reorganization of the faculty two years ago, you are as familiar as I am with the rapid strides and the steady progress of our Medical School. With its standards ever high, it has been foremost in medical education in this country, ranking seventh among the great medical schools of America. It is an institution of which this Association may well be proud, and for which many leading medical educators have predicted leadership among the medical schools of the United States.



Two years ago the reorganization of the faculty was accomplished. Its purpose was to mark a distinct advance in medical education in the West, and to make possible modern intensive teaching by salaried clinical teachers. Its faculty was top-heavy and unwieldy. In order to increase its teaching efficiency, it was thought necessary, and deemed wise, wholly to do away with private clinics, and to concentrate the clinical work in the University and municipal hospitals. When the reorganization was completed, it was found that some undesirables were left off, and others who had spent years of their time, energy, and money were relegated to the emeritus list, or simply left off without explanation. Some in the latter number have been asked to return, and have resumed their former teaching relations.

From the date of the reorganization to the present time, the happenings in the Medical Department of our State University have been heralded far and wide, in the daily press and elsewhere. You are familiar with that, and now where do we stand?

In the past unity of purpose and of action and an *esprit du corps*, together with a keen sense of public service, almost unique, has made the Medical School of the University of Minnesota notable. It is obvious that these qualities, mainstays of progress, are seriously impaired.

I speak, not only of the faculty as a body, but more particularly for the younger men in the service, upon whom the future of the school must ultimately depend, when I say there exists today a feeling of unrest and of discouragement. Distrust, suspicion and indifference seem to have replaced enthusiasm and ambition in the doing of good and efficient work. With promises unfulfilled and promotions long deferred, there is a feeling that ingratitude may be their reward, as it was seemingly that of their predecessors.

All this has been intensified by the recent events which led up to the resignation of the head of the Department of Internal Medicine, his resignation being followed by that of many of the clinical teachers, some of whom, however, have returned at the urgent request of their colleagues and the Dean.

Under conditions such as I have described above, it must be apparent that progress is being retarded, and it must be clear also that our Medical School has arrived at the most critical period of its existence. To solve the problems confronting the Medical Department will require a per-

sonal interest and study, on the part of our members, of the existing conditions, with the united profession of the state lending its influence to remove whatever obstacles may be in the way of future development.

There is a widespread opinion, among all classes, that our Medical School will need no further appropriations for the carrying on of its research work and its clinical development. The truth is, that, while a large amount of money has been spent on the Medical School, a relatively small and wholly inadequate proportion has been devoted to clinical development. To correct this erroneous opinion, is the opportunity, not only of our alumni, but of our profession throughout the state.

The greatest needs of the Medical Department of the University at the present time, in my opinion, are the employment of higher salaried teachers, men of reputation, high standards, and independence, the development of the University Hospital to the fullest extent and the development of the clinical side in the municipal hospitals of the two cities.

If confidence can be restored, ambition injected into the younger men, enthusiasm made to take the place of indifference, and an incentive to do good work is assured, the University Medical School will again resume its steady march of progress in the advancement of medical education, its high standards will be maintained. Its goal may be reached.

This brings us to a delicate point in my paper of today, namely, "the Mayo Foundation and its affiliation with the University of Minnesota." With my well-known views it must be obvious to you that any discussion of this matter would be in the highest degree inappropriate. I refrain from such discussion, not so much on account of the resolution which was passed by the Board of Regents, prohibiting further opposition on the part of members of the Faculty, which was later interpreted that we might discuss this or any other proposition pertaining to the welfare of the University, but by reason, as I said before, of the evident impropriety of *any* discussion of this subject at this time and place.

Were the time at my disposal and had you the patience, there are many other problems than those mentioned above that are of great interest and importance to this body of men and women. The cancer question, the x-ray and radium, the medical aspects of the war, fee-splitting and

commercial medicine, applied eugenics, and prophylactic contraception, the propaganda of W. J. Robinson, ably seconded by Jacobi, the tuberculosis problem—these and many others are subjects of intense interest to the profession.

In conclusion, I take this opportunity to express again my sincere thanks for the distinguished honor you conferred upon me in electing me to the highest office in your power to bestow:

and further allow me to extend my grateful appreciation to my fellow officers of this association who have worked so faithfully during the past year.

On behalf of the State Medical Association, I desire to extend to the visiting members of our profession a hearty welcome and the privileges of the floor in the discussion of all the papers that are to follow.

## AN INVENTORY OF THE PROGRESS OF MEDICAL EDUCATION IN AMERICA AND IN MINNESOTA

BY RICHARD OLDING BEARD, M. D.

University of Minnesota

### MEDICAL EDUCATION IN AMERICA

The medical profession, through the Council on Medical Education, takes an annual inventory of its educational progress. The inventory, this year, is supplemented by a bulletin, issued by the Bureau of Education of the Department of the Interior, entitled "Statistics of Professional Schools."

In these two documents there is food for reflection,—food which should energize the profession to further educational growth. It is matter for congratulation that educational betterment in medicine begins to be substantial.

Since 1906, when the medical colleges of the country reached a maximum of 162, their number has rapidly diminished to 95, a decrease of 41.4 per cent. In each of twenty-three states of the Union, there is today but one medical college.

With the diminution of the mass of the machinery of medical education, there is a distinct rise in its structural quality. Sixty-six of the existing schools are in Class A, of acceptable standards; seventeen are in Class B, falling more or less short of acceptability; twelve only are in Class C, and are wholly unacceptable. The decade in which this rapid decrease in the number of medical schools has been witnessed will be recognized in the future as the beginning of the period of the university school of medicine. Forty-nine colleges have become University schools. Fourteen of these are teaching departments of major and well-endowed institutions. Twenty-nine others are controlled by state universities and are supported by state funds. The example of Minnesota in unifying medical education under state university ownership and con-

trol has been followed or initially adopted by fifteen other states.

There is further evidence of qualitative improvement in the rapid disappearance of sectarian schools. The nondescript pattern has entirely gone. So has the physio-medical type. The eclectics have dropped from ten to four colleges. The homeopaths have but eight schools left out of a maximal twenty-two.

One of the curious things about the present teaching of homeopathy is that sixty-two per cent of its students are taught in New York, Massachusetts and Pennsylvania; thirty-four per cent in three states of the middle west and four per cent in California.

The old short-term school has practically disappeared; ninety-four per cent of the colleges having sessions of thirty-two or more weeks.

The statistics of the colleges are tallied by the data of scholarship. Seventy-six per cent of all medical students were enrolled, during the past year, in the schools of Class A. Among graduates in medicine, twenty-four per cent plus held baccalaureate degrees, while among homeopathic graduates only eight per cent, and of the eclectics only five and a half per cent, were so prepared. In eighty-two colleges, one or more years of collegiate work are required for admission.

The lead of Minnesota in adopting the seventh or hospital interne year as a requirement for the degree, has been followed, within the past year, by five other schools. The Council on Medical Education endorses the requirement.

At all the cardinal points of progress, medical education is advancing in the country at large. Even the southern schools, which have come up

through much tribulation, are nevertheless coming up.

Very much still remains to be done. The schools are yet too many. The residue of unendowed private colleges must eventually disappear. State universities, or amply endowed institutions alone can fitly meet the present-day demands, alone can fitly control the existing conditions of medical education. Even in the great centers of population, mergers of competing schools are possible and satisfactory university relations may be secured. Illinois, Missouri, Ohio, California, Nebraska, Tennessee, Texas, and North Carolina are states which stand in greatest need of the extinction of weak colleges, or of the mergence of unnecessarily numerous ones. In Illinois, for instance, the Northwestern University, the University of Chicago and the University of Illinois would amply serve the needs of the community for medical teaching. In New York, Massachusetts and Pennsylvania, inferior colleges still exist side by side with university schools that are competent to care for their entire matriculation.

The standardizing of preliminary and medical education alike remains incomplete. Its rapid approach to uniformity offers hope of ultimate attainment. Not less than two years in liberal arts and not less than five years, including the hospital internship, in medicine, is the present goal.

So much for the present status of medical education in the country at large. To the profession of Minnesota and of the Northwest, it should be of special interest to note the conditions of medical education at home. The period of the past two years in Minnesota is not without its evidences of growth.

#### MEDICAL EDUCATION IN MINNESOTA

Registration in The Medical School of the University of Minnesota has increased, until it has become necessary to impose a limit of eighty, already exceeded, upon the matriculation of the entering class, the roster to be filled upon a basis of competitive merit. This limitation is not necessitated by lack of laboratory room, which might be met by duplication of sections, but by the want of a sufficient number of beds in the University Hospitals to furnish controllable clinics and adequate clinical material for a larger number of students.

The school announced in 1910-11, the requirement of the fifth or hospital year as a prerequisite for the degree in medicine, making the provision

operative in the year 1914-15. Hospitals in which such internships are taken are subject to approval by its Administrative Board. No lack of available hospital appointments has yet been found. No lessening of the number of students has resulted from the addition of this prescribed year.

The requirement of the degree of bachelor of science or of bachelor of arts, precedent to the degree in medicine, is now fully in force. From two to three years in the College of Science, Literature and the Arts, and either two years or one year in The Medical School, are contributory to the degree, conditioned upon a satisfactory average standing in both units.

The elective system has been combined with the graded system in the undergraduate courses and is on serious trial. About one-seventh of the required hours are so employed.

Ten teaching fellowships and five graduate scholarships are offered in the graduate school in medicine. To the former have been added some thirty fellowships provided by The Mayo Foundation. Both groups carry fellowship stipends for support. The graduate courses cover periods of three years and lead to the degree of Doctor of Science. These are in no way to be confounded with the *practitioners' courses*,—an apt designation for the renovative opportunities, offered to all regularly licensed physicians, to take up laboratory or clinical work for periods of four to eight weeks in each year. The Summer School in Medicine has been permanently organized and is arranged, primarily, for these practitioners' courses. Physicians who desire to pursue research problems individually, or to attend regular lectures, are welcome to the laboratories and lecture rooms of The Medical School at any time and at no other cost than that of the material used.

The affiliation with The Mayo Foundation for Medical Education and Research has had the immediate effect of enlarging graduate opportunities. So eager is the demand from all parts of the country that already the enlarged facilities of the school for graduate instruction threaten to prove inadequate.

The Medical School has reached an epochal period in its development and epochal problems are apt to be critical ones. It has been passing through an era of change and the consequences of change. A new administration in The University at large and in the Medical School in particular, has inevitably brought about new reactions



of its component elements, some of which were previously held in perfectly good solution and some of which may have tended to crystallize in too definite forms. New policies naturally follow upon a new administration and the wisdom of them only time can test. That they do not accord with college customs or traditions invites scrutiny, but does not argue them ill-advised. That they compel readjustments is sometimes uncomfortable, but not necessarily unfortunate.

The reorganization of the faculty, effected two and a half years ago, if a too heroic, was a not unnecessary, reform. If a major surgical operation was performed where constitutional treatment would have sufficed, recovery has been reasonably well achieved.

The affiliation of the school with The Mayo Foundation for purposes of graduate teaching and research has been gained at the cost of a controversy which has involved not only the faculty, but the profession of the state. That it will prove to be a great gain to medical education is confidently anticipated. That it will serve as a stimulus to graduate and undergraduate development alike is a hope already justified in fact.

At this important juncture in its history, the friends of the school should exercise the virtue,—always difficult of exercise during the painful processes of change,—the virtue of a frank acceptance of a new status quo. This status quo is to be regarded neither as a fixed condition, nor as a permanently unsettled state; but rather as a point of departure, from which the school, given the esprit de corps that has worked out its salvation in the past, given the co-operation of its administrative and domestic forces, given the sympathetic support of its alumni and of the profession of the state, may happily continue to achieve its destiny as one of the great teaching institutions of medicine in the land. That destiny, conditioned as it is upon unique opportunities of time and place and upon the masterly use of these opportunities in the upbuilding of the School of Medicine in the past, might be halted, but it could not be ultimately changed by the mistakes of men. In human affairs, as in the affairs of nature at

large, there are certain combinations of mass and momentum which may not be stayed. But that the school may not suffer the misfortune of a halt in its present progress, two essential conditions must obtain, and for these all well-wishers of the school should stand: The first, a cordial support of the administration and a due respect for the fact that it is charged with the symmetrical development of the University as a whole, rather than of the Medical School in particular. The second, an equally cordial recognition of the autonomy of the school, as of all the major educational units of the University,—an autonomy which is the sine qua non of normal development in any state institution of learning.

Such an institution does not grow from without, but from within. Its development is intrinsic. It does not thrive upon imposed policies. Its guiding spirit is that which breathes in its own body of workers. Its actual success depends upon the initiative of its faculty, upon the frank encouragement of originality in work, of independence of thought and of freedom of speech. Its output of trained students and of new truth is the expression and the product of its own powers. It must continue to work out its own salvation. It is not redeemed by any saving grace of authority, of whatsoever virtue or name.

The present appeal of The Medical School to administration and faculty, to teachers and taught, to its alumni and to the medical profession is "to get together." There is a large work to be done. The public interest demands that medical education, unified at the State University, shall be fitly done; that The Medical School, which has already taken front rank among the colleges of the country, shall not lack the men or the means to enable it to train students in medicine as well as they can be trained anywhere. The way must be found to symmetrically round out the clinical and laboratory equipment of the school. Its faculty and its alumni, the profession until the symmetry and sufficiency of teaching and the public will not and may not rest satisfied facilities is an accomplished fact.

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NOVEMBER 1, 1915

THE MINNESOTA STATE MEDICAL  
ASSOCIATION

The annual meeting of the Association on the last two days of September and the first of October, was held at Rochester, Minnesota, and there were registered three hundred and three, which is a very satisfactory number considering the size of the city. It is questionable, however, whether it is wise for a large organization, such as the State Association, to meet outside of the Twin Cities. There were many complaints that accommodations were not available and that many men had to go from place to place to secure a bed for the two nights they were in Rochester. Notwithstanding the fact, too, that many made their reservations months beforehand, no reservations were promised definitely. Hotel men simply put the names on the list for reservations to be determined later. This sort of thing may be unavoidable, but it will not go, and Dr. Tuohy's resolution favoring one central place of meeting hereafter, was very timely. The resolution, under the rule, went over until the next meeting, when it will probably be definitely decided, and it is to be hoped that all of the members will conclude that the Twin Cities is the place to meet.

The House of Delegates did the usual business,

but nothing of very great interest happened at its sessions. An amendment to the by-laws in reference to medical defense was defeated almost unanimously. This amendment was to permit the doctor against whom a malpractice suit was brought to select his own attorney; and the amendment was defeated on the ground that it would add materially to the expense of the defense, and would practically nullify the defense division of the state organization; and it was considered impracticable.

The suggestions made by President Rogers in his address on the liquor question seemed to the writer to have been unnecessary, because the resolution introduced in the House of Delegates, namely, that the Association go on record as desiring to control the liquor question by due process of law, was rather a kick-back on the medical profession, for, if any body of men has done anything to help solve the liquor question, it is the medical men. For years doctors have abstained from prescribing alcoholic stimulants, except in very rare instances; and it is well known that for many years doctors themselves have avoided the use of liquor, and have done everything in an educative way and by precept and example to discourage others from drinking.

The banquet, which occurred on the evening of the second day, was graced by the President of the American Medical Association, who gave, in his characteristic and pleasing style, an oration on the cancer question. Dr. Rodman came from Rochester to Minneapolis and delivered another lecture on the same subject before a popular audience, and his work has evidently been very fruitful.

The program was interesting and diversified enough to satisfy the most exacting. The orations were particularly commented upon as being fortunate, not only in the selection of the orators, but in the choice of subjects. Dr. M. H. Fischer, of Cincinnati, gave the oration in medicine, and although his theories might not be accepted by all of his listeners, it was of sufficient importance and interest to stimulate a lively discussion and study.

Dr. Markoe, of New York, gave the address on surgery, and anyone who had heard Dr. Markoe was doubly glad to hear him again.

Very naturally, the Association was interested in the Mayo Clinic and the Hospital, and many of the members went down earlier than the day set for the meeting, and witnessed the wonderful clinics that are given by the Mayo staff.

## REPORTS OF SOCIETIES

### PROGRAM FOR THE ANNUAL MEETING SOUTHERN MINNESOTA MEDICAL ASSOCIATION, TO BE HELD NOVEMBER 30

TUESDAY, NOVEMBER 30—EVENING SESSION

Banquet, Auditorium, Elks Club building.

President's Address—Dr. F. A. Dodge, Le Sueur.

Medical Evidence—Justice George L. Bunn, Associate Justice Minnesota State Supreme Court.

The Etiology and Experimental Production of Herpes Zoster — Dr. Edward C. Rosenow, Rochester.

WEDNESDAY, DECEMBER 1—DAY SESSION

Lane's Plate in the Treatment of Thigh Fractures—Dr. J. Warren Little, Minneapolis.

Some Problems in Fractures—Dr. A. R. Colvin, St. Paul.

Is It Possible to Obtain Bony Union in Intra-Capsular Fractures of the Hip-Joint? — Dr. Charles H. Lemon, Milwaukee, Wis.

Migraine—Dr. Sidney Kuh, Chicago, Ill.

Unrecognized Heart Over-Strain in the Middle Aged—Dr. Charles L. Greene, St. Paul.

Blood-Pressure in Goiter and Certain Other Diseases—Dr. H. S. Plummer, Rochester.

Cirroid Aneurysm—Dr. E. S. Judd, Rochester.

The Diagnosis of Early Tuberculosis in Children—Dr. J. P. Sedgwick, Minneapolis.

The Relation of Chronic Mastitis to Carcinoma of the Breast — Dr. William C. MacCarty, Rochester.

The Present Status of the Tuberculosis Problem in Minnesota—Dr. H. M. Bracken, St. Paul.

Diagnostic Importance of Visceral Crises in Angioneurotic Edema — Dr. E. L. Crispin, Rochester.

The largest meeting ever held by the Society is expected.

### MINNESOTA ACADEMY OF MEDICINE

The first meeting of the fall was held at the Town and Country Club, Wednesday evening, October 6, 1915. The usual dinner preceded the meeting.

One nomination for membership, that of Dr. E. T. F. Richards, St. Paul, was made. No new members were elected.

The annual report of the secretary-treasurer was presented and accepted, and placed upon record.

This being the occasion for the election of officers, the ballot for President was taken first, Dr. A. W. Dunning, St. Paul, being elected. The next office to be filled was that of Vice-President. It took three ballots to determine a majority, the final one resulting in the selection of Dr. Geo. Douglas Head, Minneapolis.

One ballot was cast for Secretary-Treasurer, the present incumbent receiving a majority of the votes cast.

The election of three members of the Executive Committee, one from St. Paul and two from Minneapolis, followed. Dr. Dennis, of the former city, and Drs. Cross and Carlaw, of the latter city, were chosen.

While the election was going on several cases were reported and discussed. Dr. Ritchie mentioned one of perforating ulcer, which opened from the stomach into the lesser peritoneal cavity. The patient recovered. Dr. Dennis gave a short account of two patients on whom decompression had been performed; one was a man 26 years of age, who had sustained an injury to the head some years before; the other was a young man on whom the operation was undertaken shortly after he had received a knock-out blow in a boxing contest. The first one recovered; the second one died.

Drs. Mann, Colvin and Sweetser each related his experience with fractures of the leg in which bony union was delayed. Dr. Hare spoke of a case where a child three years old was struck by an automobile, and the skull fractured in both temporal and occipital regions. One fracture, that of the side of the head, was five inches long. The remarkable feature of the injury was, that the child remained unconscious for only a few hours, and, aside from a few days of dizziness, suffered no particular inconvenience from the accident. The recounting of this case brought to Dr. Benjamin's mind a similar experience. A girl, seven years of age, was struck by a motor-cycle and knocked to the curb, receiving a fracture of the temporal bone with depression. The child was unconscious and in shock. The bone was raised immediately; the girl recovered.

Following the election of officers, the retiring president, Dr. Frank C. Todd, presented a paper



on "Operation About the Nose and Pharynx." Concluding his address, Dr. Todd informed the Association that in memory of his presidency and as an expression of gratitude, he was having made for presentation to the Society a silver gavel which would have engraved on it the names of former presidents and the year of their term in office.

There were twenty-seven members and one visitor present. The weather was very bad.

FRED E. LEAVITT, M. D., Secretary.

## NEWS ITEMS

Dr. T. S. Roberts, of Sioux Falls, S. D., will spend the winter in Long Beach, Calif.

Work on a six thousand dollar addition of the More Hospital, of Eveleth, will begin at once.

Dr. Thos. F. Strong has located in Williston, N. D. Dr. Strong formerly practiced at Enderlin.

Dr. H. D. Burns, of Omaha, Neb., has become associated with Dr. R. G. Stevenson, of Albert Lea.

Dr. Elizabeth Barnard, of Faribault, has become associated with Dr. Frederick Adair, of Minneapolis.

Dr. N. H. Moore, of Los Angeles, Calif., has been associated with Dr. I. D. Clark, of Harvey, N. D.

Dr. A. O. Fasser, of Belle Fourche, S. D., has gone to France to accept a position in a war hospital near Paris.

It is thought that the new five-story addition to St. Luke's Hospital, St. Paul, will be completed in about three months.

Dr. S. R. Fraker, of Chelsea, Iowa, has purchased the Cass Lake (Minnesota) Hospital and practice of Dr. D. F. Dumas.

Dr. Robert Colwill, who has practiced at Bel-field, N. D., for nearly ten years, will move this month to Edmonton, Canada.

Dr. Bert Karn, of the firm of Drs. Bolsta & Karn, of Ortonville, underwent an operation for appendicitis on October 11 at the Grandview Hospital of that city.

Dr. and Mrs. Wilson A. Allen, of Rochester, celebrated their sixtieth wedding anniversary last month. Dr. Allen located in Plainview in 1865, and went to Rochester in 1872.

Dr. J. E. Rheim, of Grasston, has moved to Mora, having purchased the practice and resi-

dence of Dr. Painter, of the latter place. Dr. Painter will move to Kansas.

Physicians of western North Dakota and eastern Montana have organized the Kotana Medical Association. The next meeting will be held in January, and quarterly meetings will follow.

Dr. Victor Thompson, of Preston, has taken the practice of Dr. J. T. Holcomb, at Marine. Dr. Holcomb goes to St. Paul, and is to be associated with his brother, Dr. O. W. Holcomb.

Dr. E. O. Giere, of Watertown, S. D., has gone East to visit hospitals and to attend meetings of the American College of Surgeons and the Clinical Congress of American Surgeons.

Dr. P. B. Jenkins, superintendent of the North Dakota State Board of Health, and a resident of Waubay, was married last month to Miss Edith Graves, who has been his assistant on the Board.

Dr. S. E. Howard, Minneapolis, specialist in eye, ear, nose, and throat work, has moved to Slayton, and joined the staff of the Murray County Hospital. Dr. Howard is a graduate of the University of Minnesota, class of '93.

Dr. E. F. Reamer, who moved some years ago from South Dakota to Oregon, not finding the climate of Oregon quite to his liking, has located in Modesto, Calif., a city of ten thousand. Dr. Reamer is an eye, ear, nose, and throat specialist.

At the October meeting of the Range Medical Society, held at Hibbing, Dr. Paul Magnussen, of Chicago, head physician of the Chicago and Alton Railroad, gave an address, full of interest and instruction, on the new method of uniting bone-fractures.

The Minnesota Dermatological Society was organized at a meeting held on October 19, 1915, at Minneapolis, physicians being present from Minneapolis, St. Paul, Duluth, and Rochester. Regular meetings will be held four times a year, alternating between St. Paul and Minneapolis.

The St. Louis County Medical Society held its annual meeting at Duluth on October 14. The following were elected officers: President, Dr. D. L. Tilderquist, Duluth; first vice-president, Dr. N. D. Kean, Coleraine; second vice-president, Dr. L. Q. Greeley, Duluth; secretary, Dr. L. A. Barney, Duluth.

At the October meeting of the Hennepin County Society, Dr. E. J. Huenekens presented three cases of cretanism in one family, and Drs. Murray, Todd, Ulrich, and Lewis presented the subject of acute anginas, which was discussed at

length. Drs. R. R. Dickey and Henry Lysne were elected members of the Society.

The semi-annual meeting of the Nicollet-Le Sueur County Society was held at the St. Peter State Hospital on October 12 as the guests of Dr. R. M. Phelps and his staff. Dr. H. T. Ground, of St. Peter, read a paper on "The Diagnosis and Treatment of Cholelithiasis," and Dr. H. W. Covey, also of St. Peter, read one on "Heredity in Mental Cases."

The regular meeting of the Minnesota Neurological Society was held at the Minnesota School for Feeble-Minded and Colony for Epileptics in Faribault on October 18, 1915. Dr. A. C. Rogers entertained the Society at luncheon, after which a very interesting visit was made through the school and industrial rooms. Later a number of interesting cases were presented.

The Medical Department of the University of North Dakota is making marked progress, the attendance is rapidly increasing, and the graduates are readily passing the advanced entrance examinations at the leading medical colleges for internships. The school has attained the highest rank granted schools of its kind in the classification of American medical schools, namely, Class A.

The Minnesota Academy of Ophthalmology and Oto-Laryngology met at the University Club, St. Paul, last month in annual meeting. The following were elected officers for the current year: President, Dr. Thomas McDavitt, St. Paul; first vice-president, Dr. John M. Robinson, Duluth; second vice-president, Dr. John A. Watson, Minneapolis; secretary-treasurer, Dr. John Morse, Minneapolis.

The merging of the State Sanitary Conference with the Minnesota Public Health Association, which took place at the meeting of the two organizations at Rochester last month, leaves only one health organization of a popular character in Minnesota, but the distinctive work of each will be carried on. The Conference will continue its distinctive work as a committee (the Health Officer's Committee) of the Association. It was through the Association that Dr. Rodman gave a popular lecture in Minneapolis on cancer. Other lectures of this kind will be arranged for in other cities of the state during the winter.

The Central States Orthopedic Club met at the University of Minnesota last month. About fifty members of the Club were present. Lectures, demonstrations, and operations constituted the program. Dr. John D. Redlon, of Chicago, lec-

tured and performed an operation. The Club visited in St. Paul, and were the guests of Dr. A. J. Gillette at the State Hospital for Crippled Children. After luncheon at the Hospital, Dr. H. R. Allen, of Indianapolis, Ind., read a paper.

At the October meeting of the Watertown District Medical Society of South Dakota, held at Watertown, Dr. M. J. Hammond read a paper on "Therapeutics in Children," and Dr. L. G. Hill read one on "Iritis." The annual meeting occurs on the second Tuesday in December.

Applications may now be made for the fellowship in eye, ear, nose and throat at the University of Minnesota. The appointment is soon to be made of an additional Fellow. This position covers a period of three years, during which the student devotes his entire time to the preparation as a specialist in eye, ear, nose and throat, taking courses in laboratory and clinical branches that are offered, and serving as an assistant in the clinic. At the expiration of the three years' service and satisfactory work, the degree of Doctor of Science (in Ophthalmology and Oto-Laryngology) is granted. The fellowship carries with it a stipend of \$500 the first year, \$750 the second year, and \$1,000 the third year. Requirements for admission are limited to those who have a bachelor's degree or its equivalent, as well as the degree of Doctor of Medicine from an acceptable institution with one year's experience as an interne in a hospital of recognized standard or its equivalent. Applications should be made to Dr. Frank C. Todd, Chief of the Division of Eye, Ear, Nose and Throat, or to Dean Daniel Ford of the Graduate Department of the University of Minnesota.

#### NOTICE TO HEALTH OFFICERS AND PHYSICIANS OF MINNESOTA:

The Minnesota State Board of Health on Oct. 12, 1915, authorized the extension of service from the Branch Laboratories located at Duluth and Mankato, as follows:

The Duluth Branch Laboratory will examine specimens from all places in Cook, Carlton, Lake, and Pine counties. From all places tributary to the Great Northern, east of Bemidji and to the Duluth, Missabe & Northern, in Itasca county. From all places on the "Soo" east of Bemidji, but nothing west of Lawler or south of Moose Lake. From all places tributary to the N. P., east of McGregor and north of Rush City. From all places tributary to the Great Northern north of Brook Park.

The Mankato Branch Laboratory will examine

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Director Division of Preventable Diseases.

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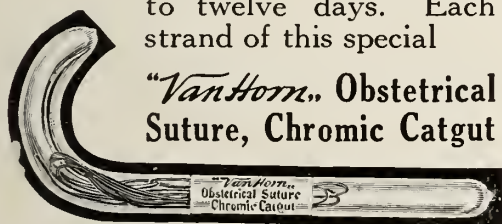
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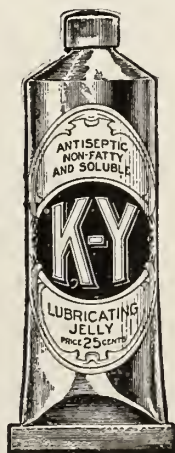
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So excellent was the management of the hospital that its capacity was soon inadequate, and steps were taken to erect a building to meet both present and future needs. Ample ground adjoining to the site of the old building was purchased, and last year work was begun on the new structure, which is now near completion and will be dedicated on the 7th inst.

The building is an attractive looking structure of reinforced concrete and brick, with a Bedford stone base. The building, in every part, is absolutely fireproof.

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nearly ideal as such a building can be. The building will accommodate between 60 and 80 pupils.

Some of the features of the new structure are worthy of notice. It contains three operating-rooms; one is for Dr. Plondke's private use; one is for other surgeons, and the third, situated away from the other two, is exclusively for septic cases, thus taking an extra and somewhat unusual precaution against the danger from septic cases.

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The Mounds Park Boulevard, now under construction, is directly in front of both the new and old buildings, the old building now being used for a nurses' home.

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The Journal of the Minnesota State Medical Association  
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## SUBDIAPHRAGMATIC ABSCESS\*

By EDWARD STARR JUDD, M. D.

Mayo Clinic

ROCHESTER, MINNESOTA

A subdiaphragmatic abscess may be designated as a collection of pus situated immediately below, and in contact with, the diaphragm. This subdiaphragmatic space is divided into four intraperitoneal anatomic subdivisions and two extraperitoneal cellular spaces. The four intraperitoneal spaces are separated from each other by the cruciform arrangement of the ligaments of the liver. The falciform ligament divides the subphrenic space into a right and a left compartment, and each of these compartments is again subdivided, by the coronary and corresponding lateral ligament, into a large anterior and a small posterior part.

The right extraperitoneal subphrenic space is between the layers of the coronary ligament. The left extraperitoneal space begins in the perinephritic tissues around the upper end of the left kidney, and extends upward between the peritoneum and the muscular tissue of the diaphragm. On the right side pus may pass between the layers of the lateral and coronary ligaments, thence to the falciform ligament, and may go even as far as the umbilicus. On the left side, infection originating in the cellular tissue about the upper pole of the kidney, may dissect upward between the peritoneum and the diaphragm, or it may extend downward behind the colon.

The upper limit of the four intraperitoneal pouches is the under surface of the diaphragm; and, in the presence of infection, the viscera of the upper abdomen adhere to each other and to

the abdominal wall, and form the lower limits of these spaces.

The right anterior intraperitoneal space is bounded behind by the right lateral and coronary ligaments of the liver. It is bounded on the left by the falciform ligament; and below this space is the upper surface of the right lobe of the liver. The lower anterior limit of this division is often formed by adhesions between the margin of the liver and the anterior abdominal wall, though, if the infection arises below, the lower boundary is formed by adhesions between the colon, stomach, and omentum, to the anterior abdominal wall. If the appendix is the source of the trouble, and the infection comes in from behind, the line of adhesions will be at the anterior edges of the liver, omentum, and colon with the pus cavity in front, pushing the liver down and back. This right anterior space communicates at its outer side with the subhepatic pouch, and, through this, with the lumbar pouch. Infection from the appendix may pass up through the lumbar and subhepatic pouches to the subphrenic; and infection from perforating ulcers may also pass downward through these pouches to the lower abdomen.

The left anterior intraperitoneal space is limited by the left lateral ligament and the diaphragm, and is bounded on the right by the falciform ligament and reflections of the peritoneum from the gastrohepatic and gastrosplenic ligaments. Below this space to the right is the stomach; below, to the left, is the spleen and the left abdominal wall. An abscess in this space is

\*Read before the Minnesota Academy of Medicine, Minneapolis, Minn., March 3, 1915.

often spoken of as an ante-perigastric abscess or as a perisplenic abscess; and most of the infections in this space are the result of perforating ulcers of the lesser curvature of the stomach.

The right posterior intraperitoneal space or subhepatic pouch is bounded above and in front by the liver and gall-bladder; the right lateral and coronary ligaments are also above this pouch. Posteriorly are the right crus of the diaphragm and the right kidney. To the left of this space are the duodenum, the foramen of Winslow, and the vessels of the liver and the common bile-duct. This space communicates with the lesser peritoneal cavity through the foramen of Winslow; and the appendix is most often the source of infection.

The left posterior intraperitoneal space is the same as the lesser peritoneal cavity. It rests on the left crus of the diaphragm and on the pancreas. To the left is the spleen. In front are the liver, lesser omentum, and posterior wall of the stomach. On the right is the duodenum, the foramen of Winslow, liver vessels, and the bile-ducts. This pouch is not as often the seat of infection as the other spaces. Infection extending directly to this fossa most often has its origin in perforating ulcers of the posterior wall of the stomach.

A detailed knowledge of the anatomic divisions and boundaries of these spaces is important, even though it is often difficult to determine clinically just which one or how many of these pouches contain infection. An abscess may invade any one of these spaces alone, or it may extend to several of them at the same time.

*Etiology.*—Infection seldom, if ever, originates in these spaces. It is the general opinion that the infection most often arises in the appendix. I have never seen a case of primary subphrenic abscess. Provided the subhepatic pouch is classed as a subphrenic compartment, infections originating in the appendix are more likely to extend to this compartment. It has been contended that the largest percentage of these cases are secondary to perforations of the stomach and the duodenum. In reviewing our series of 36 cases, I found that the largest number were associated with former operations for appendicitis. In several instances, however, it was impossible to say whether or not the appendix was the source or cause of the infection. In many, the appendiceal operation had been performed months before; the relationship was therefore remote.

There can be no question but that the sub-

phrenic abscess is often secondary to some focal infection, such as tonsillitis, influenza, boils, etc. The following cases are striking illustrations:

CASE A-98,059.—This patient, a man of 22, had gripe one month previous to coming to the clinic. He was in bed with fever for three days. Two weeks later he had a chill, which was followed by another within a few days. After that he had fever in the afternoon and occasional chills and vomiting. He complained of pain in the region of the right kidney, and had lost thirty pounds in weight. Leukocytes, 18,200. The Röntgen ray showed a raised diaphragm on the left side. Upon exploration, a subdiaphragmatic abscess in the left anterior intraperitoneal fossa was found. The pain in the region of the right kidney had been misleading. There were slight tenderness and possibly a little rigidity of the muscles on the same side. The infection in the subphrenic region, in this case, undoubtedly gained entrance through the circulation at the time the patient had the infection of the throat. General infection followed within a few days of the focal infection.

CASE A-100,797.—A man, aged 23. Eight months before coming to our clinic, he had had several carbuncles on the back of his neck, from which he recovered slowly. The last attack occurred three months previous, and one month previous he had a sudden colicky pain in the right lumbar region with a temperature of 101°. After that the pain and tenderness continued in the right subdiaphragmatic region, with a rise in temperature every day. At operation a right subdiaphragmatic abscess (posterior intraperitoneal), containing several ounces of pus, was drained.

The patient had been free from carbuncles for about a month when pain occurred suddenly in the subphrenic region, but as no other source of infection could be found, I felt sure that the subdiaphragmatic abscess was secondary to the infection from the carbuncles.

CASE A-120,122.—A man, aged 35. He had a subdiaphragmatic abscess following an extensive injury to the perineum seventeen months before he came to our clinic for examination. In the accident a large piece of steel had been driven through the perineum into the bladder. There was more or less general infection. A large abscess in the left loin was drained, which, I believe, was a subdiaphragmatic abscess caused by extension of the infection through the lymphatics from the perineum. At autopsy an abscess was found in the left posterior intraperitoneal pouch with multiple abscesses in the liver. The infection could not be traced from the perineum to the subdiaphragmatic region, but, I think it is fair to assume, the subdiaphragmatic abscess was secondary to the infection following the injury.

A subphrenic abscess is frequently associated with general peritonitis. The Fowler position may be employed to avoid this complication. Barnard<sup>1</sup> called attention to the fact that, when a patient lies flat on his back in bed, the posterior extremity of the subphrenic space is about one-half inch from the bed mattress. The pouch of Douglas, in the pelvis, is also about the same distance from the mattress. Between these two pouches is a bridge of thick muscle, kidneys, and perinephritic fat. Profuse serum is thrown out



when the peritoneum is invaded, and this gravitates into these pouches. If the patient is propped up on pillows when this fluid is still in the serum state, it all gravitates into the pelvic pouch where it may be drained. Knowing that subdiaphragmatic infection is frequently associated with low-grade infections in the peritoneal cavity, I think it is well to be on the lookout for accumulations of pus in these pouches in septic patients who continue toxic.

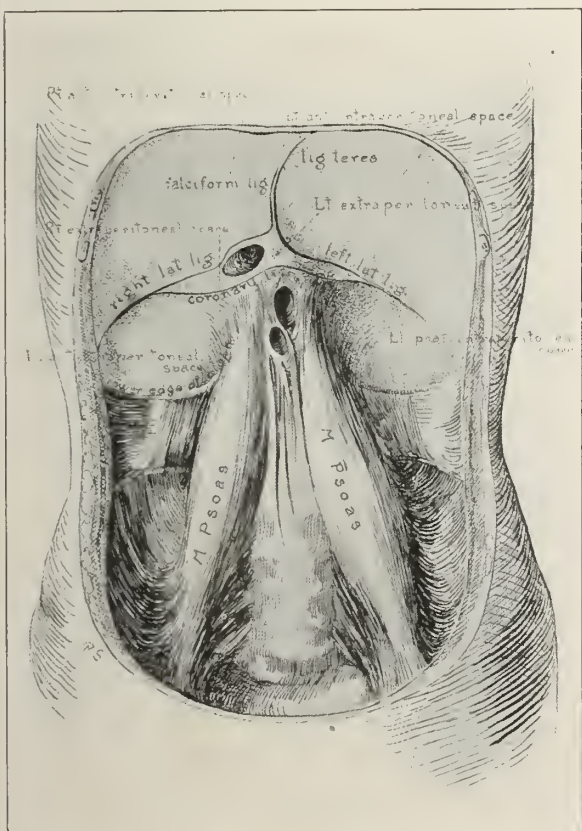


Diagram showing subdiaphragmatic spaces and boundaries formed by ligaments.

Ross<sup>2</sup> reviewed 3,391 consecutive cases of acute appendicitis, and among them found 30 subphrenic cases, or 8 per cent of the acute appendiceal cases. He notes that of 500 children under fourteen years of age who had been operated on for appendicitis, there was only one case of subphrenic abscess. Ross says that by far the most frequent mode of infection of the subphrenic region is the direct extension up the peritoneal fossæ.

#### SYMPTOMS

The symptoms produced by these abscesses vary greatly; in many cases there is more or

less of a general toxemia with intermittent temperature, chills, and constant and marked leukocytosis; often, the local symptoms do not appear until late. If the condition is the result of perforating ulcers, the previous history of ulcers will help in making the diagnosis. If it is the result of infection in the appendix, the symptoms will depend on the time the patient is seen. If the subphrenic abscess is present at the time of the operation on the appendix, it will usually be discovered. Undoubtedly, in some of these cases, in which the subphrenic infection is not a direct extension from the appendiceal infection, the subphrenic abscess has not been discovered at the time of the first operation.

Twenty-eight of our 36 patients were men. The ages varied from fourteen years to more than sixty years, though the greater number occurred between twenty-five and thirty-five years of age. The onset of the symptoms was usually slow, though in some cases it was sudden. The pain was pleuritic in character; respiration was painful. The onset may be insidious with sepsis and a rise of temperature, as in a few of our cases in which there never were localized symptoms. In one case of continued sepsis, the clinical diagnosis of left subphrenic abscess was made on account of the raised and fixed diaphragm on that side. The leukocyte count is usually high. In 16 of our cases it varied from 8,800 to 22,000; in only 3 was it normal, and in these the abscesses had evidently existed for some months. I believe that a high leukocyte count in uncertain conditions is always suggestive of a subphrenic abscess.

In our cases the duration of the trouble varied from three days to ten months. The Röntgen ray was especially helpful in diagnosing four cases. In several the diagnosis was definitely established with the aspirating needle, and I believe the needle is a very important aid in locating these abscesses. The local symptoms of pain and tenderness may be very marked. Frequently, the muscles of the loin are rigid. In the latter cases a mass can usually be palpated.

A subphrenic abscess is not infrequently associated with, or the result of, other infections in the peritoneal cavity. I wish to emphasize the importance of being on the lookout for these abscesses in connection with all types of septic conditions, no matter where the primary focus may be located. The cases in this series have been separated into nine groups according to the source of infection, as follows:

## Group I (9 cases)

## SUBPHRENIC ABSCESSES ASSOCIATED WITH APPENDICITIS

Ages of patients: 14, 19, 23, 24, 26, 28, 34, 34 years; men, 8; women, 1.

Blood: Findings were noted in 7 of the 9 cases. All of the 7 had leukocytosis,—8,800 w. b. c. to 22,000 w. b. c.

Röntgen ray: Not noted in 6 of the cases; negative in 1 case; high lying and fixation of the diaphragm in 2.

Duration of trouble: 3, 4, 6, 8, 12, 16, 24, and 40 weeks.

Results: 8 recovered sufficiently to return home; 1 died, aged 23; necropsy showed multiple abscesses of the liver.

Symptoms: Pain in the right side and in the back; rigidity of muscles; tenderness; fever; chills; sweats; in some instances distinct masses; loss of weight; leukocytosis. (These symptoms usually developed following appendectomies or acute attacks of appendicitis.) Three cases developed shortly after appendectomy. One patient had an apparently normal appendix removed; infection of the wound followed; shortly afterward a kidney stone was passed. Two cases apparently originated from ruptured appendices. In one there was drainage of a subdiaphragmatic abscess two months after drainage of an appendiceal abscess. One patient was operated on for appendicitis eight months previously, but the appendix was not found. The symptoms continued after the operation. One patient had an appendectomy nine years before coming for examination; the appendiceal stump was removed at operation in our clinic for drainage of the abscess.

## Group II (7 cases)

## SUBDIAPHRAGMATIC ABSCESSES ASSOCIATED WITH GALL-BLADDER OPERATIONS

Ages of patients: 23, 37, 39, 42, 44, 46, 46 years; men, 1; women, 6.

Blood: Noted in one case only; leukocytosis, 15,000.

Duration of trouble: 8, 11, 16, 17, 20, 30, and 120 days after operation.

Results: 3 patients recovered sufficiently to return home; 4 died—1 in two months, 1 in fifteen days, and 1 in thirteen days, after operation; and 1 two weeks after drainage of an abscess that developed after the operation on the gall-bladder four months previously.

## Group III (7 cases)

## SUBPHRENIC ABSCESSES ASSOCIATED WITH RUPTURED DUODENUM

Ages of patients: 31, 34, 36, 51, 59, 60, and 63 years; all men.

Blood: Noted in 3 cases, and leukocytosis in all, varying from 10,000 to 21,000.

Röntgen ray: Not noted in 5 cases; negative in 2.

Duration of acute trouble: 1 week; 10 days; 2, 3, and 3 weeks; 3 and 10 months.

Results: 6 patients recovered. One patient, aged 51 years, died eight days after operation; the necropsy showed double pleural pneumonia with degeneration of the liver. In nearly all cases there was a long history of duodenal ulcer with sudden acute pain (rupture); subsequent formation of tumor, fever, etc.

## Group IV (4 cases)

## SUBPHRENIC ABSCESSES ASSOCIATED WITH RUPTURED GALL-BLADDER

Ages of patients: 32, 58, 64, and 68 years; all men. Blood: Noted in 2 cases,—6,000 and 16,800. Not noted in 2 cases.

Röntgen ray: Not noted.

Duration of trouble: 10 days; 2, 6, and 8 weeks.

Result: All recovered.

Symptoms: Usually acute, sudden, severe pain, following long gall-bladder history with tumor-formation around costal margin; rigid muscles; fever.

## Group V (2 cases)

## SUBPHRENIC ABSCESSES ASSOCIATED WITH PERFORATING GASTRIC ULCERS

Ages of patients: 36 and 58 years; both men.

Blood: Not noted in 1 case; leukocytosis, 16,000 and 20,000.

Röntgen ray: Not noted.

Duration of trouble: 4 and 9 months.

The patient was drained at the time of the rupture, but the abscess re-formed.

Results: 1 patient recovered; 1 died (abscess ruptured through the pleura and emptied into the bronchial tube).

Symptoms: Usually a history of gastric ulcer and acute pain at the time of the rupture, followed by localized mass in the epigastric region.

## Group VI (1 case)

## SUBDIAPHRAGMATIC ABSCESS FOLLOWING THE OPERATION ON THE STOMACH

Age of patient: 51 years; man. Operation for cancer of the stomach. One-half of the stomach was resected and gastro-enterostomy was made. The patient developed pneumonia in five days and died twelve days after the operation. The necropsy showed pneumonia involving the lower lobes of both lungs and subdiaphragmatic abscess, the result of necrosis along the suture line of the gastro-enterostomy.

## Group VII (1 case)

## SUBDIAPHRAGMATIC ABSCESS ASSOCIATED WITH GENERAL PERITONITIS

Age of patient: 54 years; woman.

Blood: Not noted.

Röntgen ray: Not noted.

Result: Died three days after sub-total abdominal hysterectomy and appendectomy.

Necropsy: Right empyema; subdiaphragmatic abscess over liver, right side; general peritonitis; intestinal paresis; sepsis following the operation.

## Group VIII (2 cases)

## SUBPHRENIC ABSCESS ASSOCIATED WITH TUBERCULOUS LESION ELSEWHERE IN ABDOMEN

Ages of patients: 33 and 56 years; both men.

Blood: No leukocytosis in either case.

Röntgen ray: Negative in 1 case; no record in 1 case.

Duration of trouble: 4 and 10 months.

Results: Both patients recovered.

Symptoms: In 1 case pain, fever, and loss of weight

for four months; rigid muscles and increased liver dullness. In the other case the symptoms resembled those of ruptured gall-bladder.

#### GROUP IX (3 cases)

##### SUBPHRENIC ABSCESS FOLLOWED FOCAL INFECTION

Ages of patients: 22, 23, and 35 years; all men.

Blood: Leukocytosis in all three cases, varying from 18,000 to 22,000.

Röntgen ray: Fixation of diaphragm with elevation in 2 cases; negative in 1 case.

Duration of trouble: 6, 4, and 2 weeks.

Results: 2 died from general sepsis and multiple abscesses of the liver; 1 recovered.

Symptoms: In 1 case the trouble apparently followed an attack of grip one month previously; chills, fever, pain over the left kidney with mass in the left side and rigidity; rapid loss of weight. One case apparently followed multiple carbuncles, with sudden pain in the right lumbar region and fever. One case followed drainage of an abscess in the loin and suprapubic cystostomy done six weeks previously, with fever, pain, etc., after operation.

#### TREATMENT

The treatment consists of free drainage as soon as the diagnosis has been established. The operator should plan an incision which will offer the most direct access to the abscess cavity. More often this will be posterior, and the dissection will extend upward. At times it will be necessary to drain through the pleura; and then it will be best carefully to suture the intercostal muscles to the diaphragm before opening the abscess, or to pack gauze down through the pleura to the unopened abscess, and leave it in place for several days to form protective adhesions before opening the pus cavity, shutting off, in this way, the pleural cavity from infection. When the abscess is opened there will usually be a gush of a large quantity of pus; and a good-sized cavity will remain. If the drainage-tubes are removed too soon, the opening will close over, and

the pus will again accumulate, requiring secondary drainage. I believe these abscess cavities, especially if the abscesses are of long standing, should be treated in much the same way as empyema cavity is treated; and the drainage-tubes should be kept in place for a considerable period. The surrounding viscera having been displaced for some time become firmly adhered in their new position; and it requires more than a few days for the space to become obliterated. For this reason I often have these patients wear a tube-drain for several weeks, or at least until the tissues have had time to obliterate the space formerly occupied by the abscess.

The subphrenic abscess is attended with considerable mortality. The unfortunate results are often due to the fact that the condition was not diagnosed until the infection had become too extensive to be relieved by drainage.

In our series of 36 patients, there were 11 deaths. In almost every instance, death was due to an extension of the infection to the liver and to the formation of multiple abscesses in this organ. From a review of these cases, it seems to me that better results will be attained (1) by efforts to make earlier diagnoses, (2) by being suspicious of any case that shows more sepsis than can be accounted for, and (3) by employing the aspirating-needle early. When drainage has been established, it is important to maintain it until the infection has all disappeared and until there has been ample time for the cavity to become obliterated.

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## SYPHILIS OF THE NERVOUS SYSTEM\*

By W. A. JONES, M. D.

MINNEAPOLIS

In a recent article on "The Various Types of Lues," by Robertson & Klauder in the *Journal of the American Medical Association*, it is stated that "there is absolutely no doubt from the point of view of the serologist that the vast majority of luetics from the date of primary infection, are essentially candidates for syphilis of the nervous system." This sweeping statement, in connec-

tion with the huge number of known luetics, is a forcible reminder that the nervous system is an exceedingly vulnerable point for the syphilitic attack; and this fact should be constantly kept in mind in all luetic subjects. About 10 per cent of all cases of syphilis of the nervous system are hereditary in origin and in from 5 to 10 per cent of those who have acquired syphilis, the nervous system is invaded. Syphilis, therefore, may be handed down through posterity from grand-

\*Read before the Hennepin County Medical Society, February 3, 1915.



mother to grand-children; and, as early histories of ancestors are not easily obtainable, it must be acknowledged that many diseases, particularly of the nervous type, which develop insidiously and are not classical in form, may, on careful investigation, be proven to be specific in character. The beginning of an invading syphilis produces a toxemia with more or less involvement of the coverings and structures of the nervous system. This assertion is based on the supposition that the poison is conveyed by the blood-stream through the smaller blood-vessels into a tissue which is poorly equipped, and with a communicating or a return circulation. Why certain structures and certain localities are chosen by the invading toxin, is unknown, other than that certain individuals have different tissue-characteristics and predispositions. It is not definitely known how long syphilis may remain in the system, but numerous instances may be cited wherein latent or active syphilis may cover a period of forty years. These periods of activity and latency vary in time and severity; and the active process may subside with or without treatment. On the other hand, arterial syphilis, in occasional patients, may run the course from infection to death within six months. The latent period in syphilis may be prolonged indefinitely, unless some illness or over-work causes a sudden burst of activity. This condition has been found to exist among the soldiers in the present war. A large number of them undoubtedly are specific, and have either run their active course or become inactive, but, owing to the excitement, overstrain, anxiety, and probable irregular nutrition, the syphilis has been brought into rapid activity, so that many old subjects have developed either tabes or general paresis, or have become insane.

Hereditary syphilis should not be overlooked, but the difficulties of diagnosis are well recognized. Not infrequently a hereditary syphilis takes the same course in the nervous system as does the acquired form. In some instances, however, the only findings we may have of syphilis may be a defect or a stigma that seems insignificant, such as atypical lips, tongue, or teeth, chronic skin disease, chronic disease of the choroid, or hydrocephalus. One or more of the stigmata may be the only manifestations of syphilis; but the functions of the nervous system are either impaired or disorganized.

Hereditary syphilis may play an important factor in occasional epilepsy that is seen developing in adult life. Paraplegias, hemiplegias, and

chronic or recurrent headaches are other guide-posts which suggest a possible specific origin. For these, and for other reasons, a searching history of progenitors should be instituted, and a careful and thorough physical history and examination of the individual under observation should be made.

In all suspected cases of syphilis, and in the majority of those unsuspected, a denial of lues should be cast aside until the findings prove the innocence of the patient. To complete an investigation the cytological and the serological examination must be exhaustive. A negative reaction of syphilis must be proven by a Wassermann test of the blood and spinal fluid, together with a cell-count; and in order to complete the examination a Nonne and a Noguchi should be made. The investigation of all patients who have an indefinite chain of symptoms and who are looked upon as possible luetics, should be followed out with the same care with which an investigation is made to prove or disprove the existence of tuberculosis. Notwithstanding the enthusiasts of the Wassermann theory and the slurs of the anti-Wassermannites, the Wassermann test is of great value and has been shown by careful investigators to have been present in about 90 per cent of luetic subjects. Even when the reaction is negative, however, one should not jump to the too rapid conclusion that syphilis does not exist, because repeated investigation of the blood and cerebrospinal fluid is the one controlling factor that makes a corroborative diagnosis. Granting that syphilis produces a toxemia, it is fair to infer that a large number of luetics have but few symptoms indicating syphilis of the nervous system. Their resistance is of such order that the spirilla are either overcome or do not invade important territory. Many of these toxic cases show us that very frequently symptoms are overlooked, and no further attention is paid to the possibility of further extension of the syphilitic infection. These people probably suffer from the toxemia of syphilis, just as they suffer from the toxemia from any infection; and in many cases they make a prompt and rapid recovery. This simply means that we have one more difficult problem in the question of diagnosis.

Brain syphilis is perhaps the commonest form with which we meet, because it includes the meninges, the cranial nerves, and any part of the brain substance. The symptoms usually are of rather serious character, as noted by the severe headaches, the frequent or occasional attacks of vomiting and dizziness, stupor, somnolence, or

coma, together with an occasional convulsion, and paralysis of one or more of the cranial nerves. These people are commonly irritable, and not infrequently the mental condition disguises the presence of other important diagnostic signs. These, too, are the people who become hemiplegic, who commonly have an optic neuritis, and who, not infrequently, are demented. The cranial nerves are affected, and the one which is perhaps more commonly involved than the others is the 3d, with its ptosis of the lid and paralysis of the internal rectus muscle and a dilated pupil. It is usually acknowledged by neurologists that any patient presenting these three symptoms of third-nerve palsy has syphilis. When the 6th nerve is involved this manifests itself by a weakness of the external rectus muscle. The 7th nerve, which supplies the facial muscle, the 8th nerve, or the auditory, the 5th nerve and the 12th nerve, are commonly irritated or compressed in brain syphilis.

Cerebrospinal syphilis is not an infrequent type, and is sometimes not distinguishable from general paralysis. The diagnosis is made by the widespread line of symptoms involving both cord and brain. Varying changes in sensation and motion, disorders of the bladder, together with a possible paraplegia, should be sufficient to diagnose the cerebrospinal type. However, it is in this class that we see the multiplication of symptoms, and this alone is an important guiding factor in the diagnosis. The individual has headache, disorder of vision, perhaps confined to one eye, and disorder of sensation or motion in some part of the face, and disorder of sensation in one limb, in the foot, pain over the surface of the opposite limb, certain disorders of co-ordination, and paralysis of groups of muscles. Then, too, if the 3d nerve is directly involved, there should be no hesitancy in deciding that it is probably a case of syphilis. Even though the onset may have been slow, and many years after the original infection, the presence of a positive Wassermann will clear up most doubts. If the inauguration of antispecific measures is followed by more or less prompt beneficial response, you have the diagnostic complement.

Meningitis of specific form is extremely common, and this may be either of the cerebral or spinal type. The most common symptom is headache, which varies from extremely mild to exceedingly severe. It is usually worse at night, and not unusually continues for a long time. Here, also, you have the various cranial nerves involved, and affection of the spinal roots or

trunks may indicate the presence of the meningeal infection. It is sometimes difficult to distinguish gummata from infections of the membranes and the differentiation is not really important. The gumma usually occurs about the base of the brain, but may invade the membranes over the convexity of the hemispheres. The same symptoms that accompany any brain tumor, are commonly found with gummata, headache, depression or stupor, convulsive attacks, and paralysis of one or more of the cranial nerves, according to the location of the gummata.

It seems to me that the arterial form of syphilis should be more carefully investigated. If our theory in regard to the method of infection-carrying is true, it seems likely that the arteries should be the first seat of attack; and with the arteries we have the meninges, as well as the substance of the brain, involved. Consequently, local palsies, hemiplegias and monoplegias, disorders of the motor tract, thrombosis from infiltration of the arterial wall, diminution of its lumen, and, finally, a closure, account for the plegias and aphasias. These cases are not infrequently accompanied by epileptiform seizures; and, when the cardiac and renal lesions can be excluded, these nervous disorders, following arterial disease, are almost invariably syphilitic.

Spinal syphilis is not very common unless we consider as typical the paraplegias and myelitic forms. Syphilitic myelitis is not infrequent. It sometimes confines its operations to a segment of the cord or may extend through several columns producing a combined disease. In these cases we have impairment of sensation, disorder of motion, loss of sphincter and bladder control, and, in advanced types, atrophies of muscles and trophic changes in the skin. These symptoms make the diagnosis comparatively simple, and differentiate it from other forms of myelitis, such as are found following traumas. When the history of the infection is found, and the findings of the blood and spinal fluid indicate a positive reaction, we have something upon which to establish a diagnosis of substantial prognostic value. If syphilis is the cause of the myelitis, and is of recent origin, the prospects for recovery are good. If the syphilis is old, and the symptoms of long standing, the prognosis is not good, for it has been found that the degenerative changes have gone too far for an antispecific remedy to improve the conditions. A myelitis of non-specific origin usually ends with a bad prognosis.



Syphilis of the peripheral nervous system is rather rare, that is, it is not common to see neuritis due to a local trunk lesion. Usually, a specific form of neuritis, so-called, is due to central lesions rather than to lesions of the periphery. One or two exceptions to this general statement may be made in that the cranial nerve may present typical symptoms of a specific neuritis. So it is with the terminal nerves of the cord,—the cauda equina. But these do not occur often enough to make them need a definite classification.

Insanity from syphilis is not uncommon, perhaps due to the toxemia, and in other instances due to the meningeal involvement. It is not strange, therefore, that many patients are considered insane, and are committed to hospitals for the insane, who are suffering from the toxic effects of lues, which under proper treatment would have disappeared, and the patient have been saved from state hospital control. In the lesser mental disorders from syphilis may be classed those who run through the course of functional symptoms. These cases are commonly associated with fear and anxiety, brought on by the shock of knowing that they have contracted syphilis. This does not include a large number of people commonly known as "neurasthenics" or "psychasthenics." These patients are constantly filled with the idea that they have syphilis, that they may possibly transmit it to others, and, then, too, many of them consider the expense involved in the treatment of this disease, and the length of time that it takes to recover from an infection. Many of them go away with the fixed idea that syphilis is absolutely and hopelessly an incurable disease; and they easily drop into the class of nervous exhaustion or fear states.

The most common terminal or degenerative types of syphilis with which we have to deal are the permanent cord and brain lesions, one manifested by symptoms of tabes and the other manifested by symptoms of general paralysis of the insane, otherwise known as dementia paralytica, and commonly known as paresis. The transmission from one to the other, that is, from tabes to general paresis, is one of degree and advance. In tabes we have cardinal symptoms of diagnostic value, a history of pain varying in time and degree, the loss of one or both of the knee-jerks, and the loss of pupillary response to light. These symptoms are sufficient to diagnose tabes. Then, too, one often finds sensory loss, such as delayed sensation, loss of sensation in one or both

extremities, in the feet, particularly, sometimes in the point of the nose, around the nipple area, and sometimes, in the early cases, a relaxed and partially paralyzed sphincter ani. The serological findings complete the diagnosis of tabes, and assure the presumption of lues.

General paresis is simply the upward and onward march of the pathological changes which occur in tabes; and somewhere between the two diseases there exists a condition known as taboparesis, in which there is a beginning of the combination of two disorders, and, unless the disease is arrested, the two may be confidently looked for in a considerable percentage of tabetics. Most of the paretics show a decided change in their character. They become dull, irritable, and rapidly develop habits, especially bad habits, and are given to excesses. They tire very easily mentally; and they become extremely depraved. During the progress of this disease they may become very exalted, grandiose and excited, or are mentally depressed; and in some instances a certain number become demented early in their paretic life. The particular physical findings which we look for are tremors of the face muscles, lips, and tongue. They usually have irregular pupils, either in size or form; and their speech becomes thick or incorrect, and they leave out words or syllables without knowing it. Commonly, apoplectiform or epileptiform attacks are associated with general paresis. I think I have referred before to the possibility of occasional convulsions as being indicative of old syphilis or even of recent syphilis; and all cases presenting a history of convulsive attacks, particularly that develop in adult life, should be investigated for the common physical findings which indicate either tabes, taboparesis, or general paresis.

Just a word as to the pathology of these cases; and this is as simple as any pathology with which we meet. Tabes is a degeneration of the spinal cord, due to an infection and proliferation of the treponema of syphilis. The beginning is probably a preroseolar meningitis, varying in degree, and pia infiltration, and a glia proliferation. These pathological changes in tabes may extend to any portion of the cord, and ascend as high as the pons or optic tracts. This explains why we have pains varying in kind and extent, why the knee-jerks are lost, and the loss of pupillary response to light. In general paresis the pathology is identical with that of tabes, except that it involves more meningeal and arterial areas, in-



cluding the meninges at the base and those of the hemispheres.

Just a word in regard to the treatment. The majority of cases of nervous syphilis come to the attention of the neurologist after the pathological changes have existed a long time; consequently it is utterly impossible in some instances either to arrest the degeneration or to ward off further degenerative changes. It is admitted, however, that the nervous system will stand an enormous amount of insult or injury, and will withhold its degenerative processes for an incredible time. Even after a period of from five to forty years some cases are responsive, and seemingly recover from their old syphilitic lesions. The presumption is, that they still retain either a toxicity or a mild peripheral involvement, which, in many individuals, is relieved by the proper remedies.

The sheet-anchor of our treatment is the maintenance of a high standard of health by the ordinary commonly accepted methods of rest, baths, and food, which form the basis for treatment. During the period of rest the patient may be tried out on intravenous injections of salvarsan. If one is reasonably sure that there is an active destruction of tissue or an inflammatory process of the meninges or the arterial walls, salvarsan

must not be administered until the active process recedes; but, if the activity of the disease is not manifest, salvarsan may be used in graduated doses once a week or once in two weeks until the maximum dose is reached, which is 0.9. Between the injections of salvarsan, either injections of salicylate or succinimide of mercury may be given every day or every other day as an adjunct to the salvarsan. If the salvarsan is not to be used, mercury should be freely employed, either by rubbing, hypodermatically, or by the mouth. The use of iodide of potassium is necessary only in old cases; and even then its value is very doubtful. One should never forget that these cases need constructive remedies and the use of iron. A small tonic dose of strychnia or arsenic may be given at some time, with the intravenous or hypodermatic medication. Be sure that the patient is under control, careful observation, and under continuous treatment until the Wassermann reaction is negative. Even then the treatment should be prolonged in a modified way at the discretion of the physician. A positive reaction of either spinal fluid or blood demands a continuance of the drugs, with occasional intervals of a few weeks, in order to see whether the Wassermann is present or not. This is the guide to further medication.

## STREPTOCOCCICOSIS\*

BY HENRY L. ULRICH, M. D.

MINNEAPOLIS

There are two facts I wish to bring out in this study:

1. The diversity of clinical manifestations in streptococcal focal disease.
2. The significance of the blind apical abscess in streptococcal focal disease.

One of the most valuable contributions to medicine of recent years is the doctrine of focal infection. The Chicago school has done much to bring this idea into prominence. The writings of Billings, Rosenow, and Jackson (see bibliography at the end of this paper) are the most illuminating as to the extent and the importance of chronic infectious processes. A striking and co-eval fact of this doctrine is, that it has evolved, and has its origin in, the study of one type of organisms,—the streptococcic group. We have been aware of this focal law with other infectious organisms; in fact, any of the cocci lend themselves to

this form of pathological reasoning. It is the tremendous extent of distribution, its adaptability to variety of foci, its protean clinical manifestations, which have given the streptococcus this important distinction. Another very important fact co-existing with this doctrine, inherent in the biology, and evolving out of the fast accumulating data, is the splendid demonstration of the laws of mutation, virulence, and selective action which these mutants exercise in establishing foci. So great is the clinical importance of this doctrine that a large group of clinical entities, seemingly unrelated, if classified according to the etiologic factor, could be given the collective name of *streptococcicoses*. The significance of such a term does not alone lie in its nomological adjustment. It has descriptive as well as psychological values. To say a patient is suffering from gastric ulcer when, at the same time, this patient has a chronic streptococcic throat, or a blind abscess at

\*Read before the Minnesota Academy of Medicine, January, 1915.

the tip of a devitalized tooth, is not so correct, nor as descriptive, nor as psychologically striking, as to sum him up a case of streptococciosis. Or, again; under such a nomenclature it would be poor technic for a surgeon to remove an inflamed appendix and not eradicate a chronic tonsil, evacuate a sinus, or extract a devitalized tooth at whose tip the ubiquitous abscess is present.

Of the more recent additional foci established under these focal laws are the gastro-intestinal complexes,—ulcers of the stomach, duodenum, and colon; acute and chronic appendices; acute and chronic cholecystitides; the genito-urinary complexes, with their acute and chronic renal, bladder, and prostatic involvements; the articulations, with muscle-tendons and nerve-sheath involvements; and, last, but not least in importance, the blind abscesses at the roots of devitalized teeth.

The root-abscess focus is far more important, far more significant, and far more common than has heretofore been realized. Strange to say, the Chicago school, which has done so much in establishing these focal data, has paid little attention to this feature.\* If it were possible to tabulate all the foci outside the upper respiratory tract or rather outside the tonsils the root abscess of the devitalized tooth would lead the list by a large majority.

Fifty cases in which blind apical abscesses were present, the cultures of which abscesses gave types of streptococci, were analyzed as to age, sex, and clinical findings. The cases were chosen at random. (Twenty are from the University Hospital clinic; and thirty are from my private clinic.) They are grouped for convenience under several broadly descriptive lines. Some of the descriptive features of Groups IV and V are filled in from other sources for the sake of completeness:

I. Rheumatoid group (24 cases) in which the special features of the cases consisted in arthritis deformans, rheumatoid arthritis, myositis, with or without cardiac involvements.

II. Cardiovascular group (5 cases) exhibiting as main features heart-lesions, hypertension, without any appreciable rheumatoid manifestations.

III. Asthenic group (11 cases) closely allied to Group I, having joint, peri-articular pains, nerve or muscle pains, but the main picture is one of asthenia, mild anemia, albuminurea, occasional myocardial weakness. Visceroptosis is a common finding in this group.

IV. Gastro-intestinal group (2 cases) exhibiting

gastroduodenal ulcers, gall-bladder, pancreatic symptoms, acute enteritides.

V. Genito-urinary group (1 case) allied to Group I in having at times rheumatoid pains with renal, bladder, prostatic, and seminal involvements.

Sub-group I (2 cases)—Resembling mild chronic tuberculosis of the lung and difficult to distinguish clinically from tuberculosis, without tuberculin. The x-ray findings are almost identical.

Sub-group II (5 cases)—Streptococcal focal infection, superimposed on tuberculosis, syphilis, primary anemia, or *vice versa*.

On tabulating the physical findings according to the order of frequency the list reads as follows:

1. Secondary anemia .....	24
2. Rheumatoid conditions, including arthritis deformans .....	23
3. Cardiac lesions .....	21
4. Pyorrhea .....	18
5. Albuminurea .....	17
6. Chronic tonsillitis .....	15
7. Caries, dental .....	10
8. Neuritis .....	6
9. Adenopathy .....	6
10. Visceroptosis .....	6
11. Bronchitis .....	5
12. Hypertension .....	4
13. Nephritis .....	3
14. Cystitis .....	3
15. Tuberculosis .....	5
16. Leucocytosis .....	3
17. Gastric ulcer .....	2
18. Ascites .....	2
19. Primary anemia .....	1
20. Enteritis .....	1
21. Glycosuria .....	1
22. Lues .....	1
23. Iritis .....	1

The ages of patients range, 1 case in the 2d decade, 7 cases in the 3d decade, 14 cases in the 4th decade, 10 cases in the 5th decade, 13 cases in the 6th decade, and 5 cases in the 7th decade. The sexes were equally represented.

Recognizing the fallacy of too wide a generalization from so small a group, my experience with streptococcal infections extends over a larger number than is represented. I cannot, therefore, resist injecting into this study the remark that it represents in miniature the details of what a more extensive study will bring forth. This glimpse of the extent of clinical variations illustrates the vagueness of the etiological factor if the doctrine of focal infection and its distribution is not clearly held in mind. It might be pertinent to ask in what manner was it possible to attribute pathogenic action to these foci in the mouth; or the question could be raised, was

\*This paper was prepared prior to the communications of Gilmore, Billings, and others, in December, 1914, in the Jour. of the A. M. A.

there always contributory pathogenic action in the body by these foci?

The clinical proof for pathogenicity is very striking in Group I. There were several instances in which no results were obtained by the removal of the tonsils alone. Not until the dental lesions were destroyed was there prompt restitution. Other cases reported removal of the tonsils and all other foci, except the mouth foci. The reduction of these foci again gave quick response. The use of vaccines prepared from bacteria prepared from apical lesions, gave focal reactions, which is abundant proof of specificity. In some instances removal of some of the foci in the mouth gave partial relief. On the removal of all foci in the mouth, including teeth of suspicious appearance, complete and permanent results were obtained.

In Group II, owing to the nature of the lesions, clinical proof of the type employed for Group I is not satisfactory. It has occurred to me, however, that in certain instances of recurrent cardiac attacks some of the older ideas of recrudescence of old lesions on the valves, may be supplanted by the thought that some focal depot, such as the tonsil or the teeth, might very well be considered as factors in keeping up the cardiac features.

I was struck by the hypertension found in two cases, one case reported in the group, another not included in the group. Both these cases were in persons over fifty. The renal condition from the urinary findings and functional tests was practically negative. The proliferation action of the streptococci on vascular endothelium as described by Jackson,<sup>4</sup> their embolic tendencies in the vasa vasorum, may very well give rise to a form of endarteritis resulting in general sclerosis with or without the subsequent hypertension.

In Group III the removal of dental foci has been very striking in improving the clinical picture. There is no doubt that a certain number in this group may belong to the latent-tuberculosis class described recently by Dr. Geo. Douglas Head. (Neurasthenia and Tuberculosis (concealed) *Jour. of the A. M. A.*, vol. 63, p. 996, 1914.)

The cases in Groups IV and V are too small, and the data too recent, to draw conclusions from clinical results. Papers by Hastings (Complement Fixation for Streptococcus, Gonococcus, and other Bacteria in Infective Deforming Arthritis and Arthritis Deformans, *Jour. of the*

*A. M. A.*, vol. lx, No. 10, p. 1208), and Squires (Indications for Operation on the Seminal Vesicles, *Boston Med. Jour.*, vol. clxx, No. 24, p. 908) would lead one to include a certain percentage of these types of cases under streptococcal infections.

In the Sub-group I the two cases gave striking features of pulmonary tuberculosis. In one case of persistent asthma with x-ray findings, atypical of tuberculosis, a streptococcus viridans was isolated from the bronchial secretions; there was an eosinophilis. Tuberculin gave a doubtful reaction. In the second case there were streptococci in the sputum. There were periods of malaise, loss of weight, and bronchial symptoms. The x-ray findings were also indeterminate.

Sub-group II was included in this review as examples of superimposed infections. The value of a skiagraph of the mouth in establishing an additional or remaining depot of focal infection in streptococcal disease is unquestioned. The apical abscess may be the only focus left, evacuation of which will permit the re-establishment of renewed integrity to all parts. It may hold the balance of power in the struggle of the body for complete sterilization. Thus the discovery of such a focus is important in the prognosis of any given case.

Another element in the disclosure of these apical foci is the opportunity for reclaiming material for therapeutic purposes. Members of the Chicago school take infinite pains to obtain cultures from periarticular tissues for the manufacture of vaccines. They even resort to nearly enlarged glands. The technic is difficult, and is fraught with much disappointment. Growths from apical abscesses are easily obtained (I have never seen a failure to obtain streptococci); and, since the evacuation is essential, this phase of work can be done at the same time.

To establish some idea of the prevalence of blind abscesses I have looked over 387 cases whose röntgenographic films of the jaw were available. In these cases, 997 teeth came under suspicion. By conservative interpretation, 736 root abscesses were seen. There were present 806 artificially devitalized teeth. Of these, 545 had blind abscesses at the tip of the roots, and 191 abscesses were present on teeth devitalized either by accident or pulp-destruction by caries. The bacteriological flora of all these cases is not entirely known. In the 50 cases, the clinical features of which I analyzed, a streptococcus was

4. Jackson: Experimental Streptococcal Arthritis in Rabbits, *J. of Inf. Diseases*, vol. xii, 1913.



invariably found. Henrici<sup>7</sup> reports a study of the flora of 82 cases, 75 of which gave a streptococcus. Twenty of these cases are included in my clinics, so that in 112 cases (combining my 30 with his 82) 105 gave a streptococcus.

I have purposely refrained from naming the type of streptococcus found in these abscesses. Henrici finds invariably the streptococcus viridans. In my own experience, I have noticed that early cultures show green on human-blood agar, but sub-cultures on identical media very often grow hemolytic, and subsequent cultures may grow less and less hemolytic. Occasionally streptococci without color or hemolysis were found.

The importance and prevalence of root abscesses raises the question, what type of teeth are involved? Teeth that are devitalized for the purpose of root-canal filling, or teeth killed by accidental injury or pulp-destruction from caries, are the only teeth that have apical abscesses. A healthy tooth never exhibited an abscess.

The prevention of such abscesses entails a new dental attitude. It is my impression that, in the days when dentists removed pulpless teeth, the statistics of chronic rheumatoid conditions were much lower than today. Chronic rheumatoid conditions are decidedly on the increase, and I attribute it to the prevalent custom of dentists to save teeth. The devitalization of teeth, which entails the destruction of nerve- and blood-supply to the apex and contiguous bone areas, produces a locus resistencie minoris, with lowered oxygen pressure, thereby creating an ideal nidus for streptococcal growth. Devitalization, therefore, is of grave significance to the health of the community, and in those individuals already invaded by streptococci, it is decidedly reprehensible. Since we are already, or are potentially, sensitized to this omnipresent organism, we are compelled by the logic of the situation to condemn all efforts at devitalization by dentists, and strongly to urge extraction of teeth which need removal of pulp.

In putting this before the State Dental Association the question of the mechanism of the abscess was raised. These abscesses in my opinion are invariably hematogenous in origin, and are not due to faulty technic on the part of the dentist.

Drs. Best and Davis, who oppose this view very strongly, kindly collected 135 cases where the root-canal fillings were done by other den-

tists. They report 128 defective root-canal fillings with 103 abscesses. There were seven good canal operations, none of which showed an apical abscess. The commentary on their report is obvious. There is no doubt that bad technic plays a part in the more rapid possibility of an abscess; but it is not the causative feature. The true factor is the creation of an ideal nidus for streptococcus. I am glad to say that certain local dentists have accepted this doctrine, and are materially varying their attitude toward pulp disease.

#### CONCLUSIONS

1. Streptococciosis may be defined as an invasion of the streptococcus group involving one or more foci, from which, by means of the bloodstream, many new foci are established, the tissue selected being different depending on virulence, mutation, and resistance. The clinical picture resulting, being as varied as the physiopathological reaction of tissues invaded will permit.

2. The blind apical abscess is due to streptococcal invasion of an area ideally created by the mechanical removal of canal pulp by dentists, or by natural death of the root pulp by accident or caries.

3. The blind apical abscess lends itself readily for the purpose of obtaining material for cultural study and therapeutic material.

4. To prevent an additional focus in streptococcal focal disease, i. e., the blind dental abscess, dentists should refrain from devitalizing teeth.

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\*5. Paper read before the Minnesota Pathological Society, December, 1914.

# CONVERGENT STRABISMUS: ITS CAUSATION AND TREATMENT\*

BY A. EINAR JOHNSON, M. D.  
WATERTOWN, SOUTH DAKOTA

In the normal arrangement of the eyes there is always an effort by means of muscular adjustments of the axes of the two eyes, to bring them into such relation that the image of the object looked at will fall upon exactly corresponding points of the two retinæ. When this adjustment obtains, the two eyes see as one and a single perception is presented to the mind.

If for any reason the muscular arrangement of the eyes is less favorable, there will be a tendency of the visual axes not to meet at the point of fixation. This tendency to deviation is known as heterophoria, which is usually by an effort of the will, conscious or unconscious, overcome. If this tendency is strong enough to resist the effort to overcome it, one eye will deviate and the result is a heterotropia or squint.

Strabismus, or squint, may be defined as that condition in which there exists a deviation of one visual axis from the normal position. If the visual axis of the deviating eye is directed to a point proximal to that of the fixing eye, the squint is convergent in character, and the result is a homonymous diplopia.

If the visual axis of the deviating eye is directed to a point distal to that of the fixing eye, the squint is divergent in character, and the result is crossed diplopia. In this case the two visual axes diverge and could only intersect if produced backwards, and the point of intersection would lie behind the eye.

The squint may also be a deviation up or down, but as the most common kind to be seen in practice is the convergent, this paper will concern itself with this only.

## CAUSES

The first plausible theory advanced for the causation of squint was the attributing of the defect to a shortening of the internal recti by virtue of a faulty insertion of the tendons of these muscles—the natural sequence of this apparently simple theory was, that by severing these tendons the defect would be remedied, and as a result there was a wholesale slashing of tendons until many disastrous results occurred.

Claude Worth, of London, undertook to measure the power of abversion of each eye sep-

arately in 1,523 cases of convergent squint, and found it normal in 81 per cent, while in the remaining 19 per cent abversion was found subnormal. In these 19 per cent of the cases the defect had, in the vast majority, lasted for years and the defect of the functional abversion was directly proportionate to the time of the deviation. Worth draws the conclusion from these experiments that in at least 81 per cent of convergent squint, the muscle theory is untenable, while in the remaining 19 per cent the deviation will seem to be the result rather than the cause of the squint.

Following this theory was the publication of Donders' work on the accommodation theory, which, according to Worth, was the first real light shed upon this particular field of ophthalmology.

Donders bases his theory upon the following observations: when an emmetrope looks at an infinitely distant object, the rays of light are parallel and the static refractive apparatus of the eye is sufficient to focus these rays on the retina; while if he looks at an object near by, the dynamic refraction must be brought into play in the act of accommodation, but at the same time the eyes must also be turned slightly inward, constituting the act of convergence. These two functions, accommodation and convergence, always go hand in hand; that is, by using one diopter of accommodation we must also use one degree of convergence in order to properly focus the eyes for near objects.

In the case of a hypermetrope, the act of accommodation must be brought into play, even for distant objects, to a degree equal to the hypermetropia; while for near objects he must accommodate both for his hypermetropia and also for the nearness of the object, and due to this abnormal increase of accommodation there is a natural tendency to a proportionate increase in convergence, which in some cases persists even when dynamic effort ceases, and these cases would then be suffering from convergent squint.

While Donders' theory was a great step in advance on the muscle theory, he erred in assuming too much and considering it the essential cause.

Worth proves the fallacy of this theory as follows: the vast majority of children are hyper-

\*Read before the Watertown District Medical Society, at Watertown, August 10, 1915.

metropic, while only a small number are squinters. A great many children who suffer from convergent squint have no more than a normal amount of hypermetropia, while a few are actually myopic.

#### THE THEORY OF DEFECTIVE FUSION FACULTY

The same author found that in all cases of convergent squint there is, in addition to the deformity, always a defective fusion faculty and nearly always a suppression of the vision in the deviating eye. He has found that the fusion faculty is already well advanced at the age of one year and fully developed at the age of six years, and that the tendency to fuse images formed on the two retinae, or the desire for binocular vision is, in the absence of any disturbing factor, sufficient to maintain the relative relation of the eyes. But in cases where this faculty is delayed or deficient or totally absent, the guidance of the eyes is left entirely to the motor coördinative function, and anything tending to disturb this balance will cause a permanent squint. In his opinion there is *nothing* outside of a muscular paralysis which can cause squint after the fusion faculty has become fairly well established, and he concludes that the essential cause of squint is a defective development of the fusion faculty. De Schweinitz refers to this theory as follows: "The desire for binocular vision, or single vision with the two eyes, which depends upon the blending of the two sets of sensations, or, as it is also called *fusion*, is believed to be the origin of the impulse which directs the movements of the eye-balls, especially in association in the same direction."

Other causes of squint are anisometropia or a considerable difference of vision in the two eyes, making binocular vision difficult. Specific fevers, as diphtheria, may cause a temporary disturbance of the recti muscles by reason of toxine absorption. Injury to the 6th cranial nerve during birth may cause a squint by a resultant paralysis of the external rectus. Hereditary influence is a marked feature in families where squint occurs. In Worth's series of 1,373 cases of squint there was a history of squint among the near relatives of the patient in 51.78 per cent.

#### TREATMENT

We find in every case of squint:

(a) Deformity, resulting from the abnormal angle to which the eye is turned.

(b) Varying degrees of amblyopia from disuse of the eye, because, due to the abnormal posi-

tion of the eye, the rays of light do not fall upon the macula.

(c) A deficient fusion faculty due to the acquired habit of suppression of one image in order to overcome the diplopia.

What we will have to aim at in the treatment of such a case will then be:

(a) To bring the visual axes into proper alignment, which does away with the deformity.

(b) To overcome, as far as possible, the amblyopia if it has occurred, or to prevent its occurrence if we get the case early enough so it has not yet developed.

(c) To train the fusion faculty so as to facilitate binocular single vision and aid in keeping the visual axes in their proper relation.

In trying to attain these objects we have the following means at our disposal:

(1) Optical correction of any refractive error, and as the great majority of these cases are hypermetropic or have hypermetropic astigmatism, the importance of this measure is readily appreciated. The refraction should be done while the ciliary muscle is completely at rest. This may be accomplished by the use of atropine in solution in the usual manner, or, in very young children, by a 1 per cent atropine ointment, which is less apt to produce toxic symptoms. As nearly the full correction of the ametropia as possible should be worn. From this treatment alone about 30 per cent of cases are cured.

(2) Occlusion of the fixing eye by a shade or pad strapped to the face by adhesive plaster or fastened by a bandage so that the child cannot remove it. The object of this measure is to compel the squinting eye to fix, and in this way educate the eye to appreciate the visual impulses and also to train it to maintain its proper position in relation to its fellow. The benefit of this practice is usually apparent in from two to four weeks if much good is to be accomplished by it. If after two months the deviating eye shows no improvement, it should be discontinued.

(3) Instilling atropine in the fixing eye *only*. This use of atropine in the fixing eye *only* is considered by Worth as a very efficient means of curing squint in young children, provided the vision in the deviating eye is from  $\frac{1}{10}$  to  $\frac{1}{6}$  of the normal.

The vision of the atropinized eye will be blurred for near objects, but will remain clear for distance; the result being that the child, in order to see its playthings, soon discovers that by turning both eyes laterally until the squinting eye



is brought into line with the object, he can see them more clearly, and the result is that the habit is formed of using the atropinized eye for distant and the unatropinized eye for near objects. When the vision of the squinting eye has become improved so that it approaches the normal, he will use this eye both for near and distant objects, and the originally fixing eye becomes the squinting eye. When this occurs the drug is withdrawn and the eyes watched for two or three weeks. If the squint reappears in the squinting eye, the atropine is repeated for a few days each month in order to keep the balance. The drug should be instilled each morning and the optical correction should be worn constantly. The case must be kept under observation and seen at regular intervals, specific orders given to the mother, and treatment continued until no further improvement is gotten. It may be continued for months without in the least causing any damage to the accommodation.

The use of atropine in both eyes is to be condemned, as it will surely increase the amblyopia of the deviating eye.

(4) Training of the fusion faculty. This must be done between the ages of three and five years if much good is to be expected; after the sixth year it is of no use. The vision of the squinting eye must be sufficient so that the child can distinguish a white ball one inch in diameter at the distance of 18 or 20 feet. For the exercise of the eyes to develop the fusion faculty, the Worth amblyoscope is the best instrument. It is composed of two short tubes joined to two longer tubes at an angle of 120 degrees, mounted so that the angle between them can be easily varied to comply with the angle of the squint. At the proximal end the tubes are fitted with plus lenses having a focal distance of five inches; at their intersection are a pair of plain mirrors; at the distal end are slide carriers into which can be placed discs having upon them simple pictures, so constructed that a picture of part of the object is on one slide and the remainder on the other. By manipulating the tubes the pictures will appear to come together and form a single, complete picture, which is only possible to appreciate when some degree of fusion faculty exists. If this faculty can be successfully developed the powerful desire for binocular vision is often the means of curing the squint.

If, after a faithful trial by this treatment, the

deviation is found not to be improving, the only remaining means of treatment is by surgical procedure.

If surgery of the extrinsic muscles of the eye is resorted to for the correction of convergent squint, two courses are open to the surgeon: tenotomy of the internal rectus, or advancement of the external rectus, with or without tenotomy of the internal, as would be indicated in the case under consideration.

From tenotomy of the internal rectus the average result is thirteen degrees of outward rotation, sometimes giving rise to a divergence or a sinking of the caruncle, or even a protrusion of the eyeball, which are very unsightly and troublesome complications after such an apparently trivial operation.

In performing tenotomy of the internal recti it is advisable to leave three to five degrees of deviation to allow for the tendency to increase after the operation. If the inward deviation exceeds twenty degrees, a single tenotomy is not to be depended upon. However, if the squint is alternating and there is good vision in each eye, a tenotomy of both interni may be sufficient. If the angle of deviation is around thirty degrees, is unilateral and the deviating eye is amblyopic, it is usually necessary to make an advancement of the external rectus and a tenotomy of the internal of the deviating eye, and in certain cases it may also be necessary to make a small tenotomy of the internus of the opposite eye.

Tenotomy is comparatively easy to perform, but the procedure is not scientific because you cannot accurately gauge the effect desired; it may not be sufficient in amount or it may be excessive. In either case an additional operation may become necessary. For this reason, the consensus of opinion among the leaders in the field of ophthalmology is, that advancement is indicated in the vast majority of cases; because while it is a more difficult procedure to master, yet it is far more accurate and satisfactory, and reduces greatly the necessity of re-operating.

As far as functional result is concerned after the operative treatment of squint, some authorities believe that not over 20 per cent of the cases will secure binocular vision. This, however, depends greatly upon how early the case comes under observation and what means are employed toward stimulating the desire for binocular vision.

# PROSTATECTOMY, WITH SPECIAL REFERENCE TO PRELIMINARY AND POST-OPERATIVE TREATMENT\*

BY EMIL C. ROBITSHEK, M. D.

MINNEAPOLIS

The most significant affection of the prostate gland is hypertrophy, the etiology of which is even yet obscure. It is, moreover, a not uncommon or infrequent disease, existing more especially in men who have passed the age of sixty years, and of whom it has been estimated one out of twenty has consequential symptoms of urinary obstruction, and of these cases, furthermore, twenty per cent are malignant. It is also fairly well reckoned that one-half of the number of these, having symptoms of urinary difficulty, not living a catheter life, and remaining unoperated on, will die within five years from the time of the onset of the symptoms of urinary impediment, while, in those living a catheter life, this prospect is divided one-half, and the mortality rate advanced to sixty-six and two-thirds per cent within the contracted period.

Among those who do not give due attention to the surgery of this gland the impression prevails that the death-rate from prostatectomy is still, as formerly, excessively high. Fain would I call the attention of those to the magnificent reduction in this regard within the last fifteen years, so that, whereas the former rate was fifty, it has been reduced in skilled hands to five per cent or less, thus raising the operation to the plane of the quite safe and satisfactory ones. Notwithstanding all this, we are not satisfied to rest content; rather do we endeavor to improve these statistics by a careful choice of the cases after a vigilant and exhaustive study of the fitness of each candidate.

It must be realized by one about to undertake the performance of the surgical removal of the prostate gland, that, as a rule, these patients, because of their age and of the usually associated pathological lesions of the heart and kidneys with resultant poor resistance to shock, hemorrhage, and sepsis, form a class of the most unfavorable surgical risks, and that, not only upon the operation itself, but far more upon the functional capacity of the kidneys, heart, and general circulation, does the mortality of prostatectomy depend. This is, then, an operation that requires skillful attention to and consideration of details, with careful knowledge and judgment of when

and when not to operate. It behooves us to apply every scientific means in the matter of establishing a correct diagnosis of local as well as general conditions, in promoting the health of the patient, in the operative technic, and in the correct preliminary and post-operative management of every case. Surgical opinion is now in full accord that,—and I cannot emphasize it too forcibly or impress it upon you too deeply,—of the above, correct treatment preliminary to the operation is by all odds the most essential feature of prostatectomy.

A digital examination, in order that some idea of the size, shape, tenderness, and consistency of the gland, may be had, should be made in every case. The amount of urine passed in twenty-four hours must be measured and recorded, and the urine carefully examined. The specific gravity of the urine at a low index is an unfavorable sign prognostically, and calls for proper treatment. Albumin and casts, unless in large quantities, are not necessarily a bar to the operation. Diabetes, however, is a contra-indication. Wherever possible, I believe, the cystoscope should be used. Its value here lies in the information it gives relative to the prostate, growths, stone, diverticula, bladder, and even kidney condition. Frequently, its use is prohibited by the difficulty encompassed by a tortuous passage of the urethra. Still another important item never to be neglected is the estimation of the amount of residual urine. When this amount reaches or exceeds three hundred cubic centimeters, the musculature of the bladder is apt to become strained, and soon more or less permanently dilated, as will also, due to the back-pressure of the urine, the ureters and kidney pelves. As a result there may be added to this a hydronephrosis, pyelitis or pyelonephosis.

There is no question but that before any operative procedure is attempted for the removal of the prostate, some method should be employed to ascertain, as far as lies in our power or knowledge, the functional capability of the kidneys. At the present time in this country the method most frequently in use is that with phenolsulphonaphtholine, no doubt familiar to you all. While by no means perfect or always correct, it holds its position with other methods, and has

\*Read before Camp Release District Medical Society, Franklin, Minn., April 29, 1915.

the advantage of simplicity. According to its originators, thirty-five per cent or more should be eliminated the first hour. Where the kidney action is below standard this output is delayed in its onset, and the amount of early expulsion proportionately diminished, while the whole duration of time of elimination is prolonged. Indigocarmine and cryoscopy of the urine and blood are two methods also in use, though with much less frequency. Some depend entirely upon the amount of urine passed within a given time, as well as upon the specific gravity, as a basis for tests of renal efficiency. In any event, the importance of this should not be overlooked, since serious impairment without proper treatment would likely result in uremia and death.

We have all been taught that completely evacuating a distended bladder in cases of marked retention, leads to congestion and hemorrhage from the bladder or kidney, with shock or even sudden death. In this connection in these cases of enlarged prostates with urinary obstruction, it is well to keep the above in mind and to begin at once the employment of intermittent catheterization. The catheter may be left in the bladder, the distal end being clamped and released every three or four hours, or it may be used intermittently. Deaver recommends its use once in twenty-four hours where there are four ounces of residual urine; twice in that time where there are six ounces; and one more catheterization for each additional two ounces, up to, if necessary, six times daily. Of course where the urine and bladder are normal no such treatment will be necessary, and where, as occasionally happens, no catheter can be passed or endured because of pains, chills, or uremic symptoms, a suprapubic cystotomy, under a local anesthetic, had better be performed. At this point one might be easily allured to finish or complete the entire operation in the belief that such could but slightly influence the danger of the first; but let me caution you that it is precisely this "little additional" which may influence the fates against the patient. It will be found that catheterization in the manner here described will soon relieve bladder irritability, and increase the specific gravity, while decreasing the pus and the offensive odor of the urine.

Under strict asepsis the bladder should be irrigated twice daily with a weak solution of silver nitrate, boric acid, or normal saline solution. Hexamethylenamine, preferably in combination with boric acid, may be given, ever remembering

to give it with large draughts of water, but not in too large doses over a long period of time. I believe it best to keep the patient in bed, comfortably warm, regulating the bowels by enemas and laxative salts, and paying attention to his diet, in order that he may have plenty of soft food, milk, and water, and he should be encouraged to drink water freely. A pint of ordinary tap-water or normal saline in the rectum, three times a day, is advisable. Cardiac tonics, if required, with a daily warm tub bath, conclude the usual preliminary operative requirements, which, permit me to add, must never be hurried, often requiring, depending upon conditions, from one to several weeks. Severe cardiorenal trouble or advanced arteriosclerosis should be a contra-indication for the operation.

The choice of the method of operating, whether suprapubic or perineal, and the technic employed should not be a matter of routine in every case, but, rather, should be adjusted to each individual patient's condition. Each method has its advocates and antagonists, and its advantages and disadvantages, although in this country the suprapubic method remains the one of choice of the majority of surgeons.

The matter of the choice of the anesthetic is also very important. Young, who has the remarkable mortality of 3.8 per cent in his cases, attributes half of these to the anesthetic. Zuckerkandl, in his series, ascribed seventy per cent of his deaths to this one factor. Every one is agreed that as little of the anesthetic as possible should be administered. I find the majority of surgeons give nitrous oxide gas the preference. Local anesthesia, either as given in spinal anesthesia or with novocain, has its enthusiastic supporters, and each method has equally good results. These are now usually preceded by a hypodermic injection, about one to one and one-half hours before the operation, of morphine and scopolamine.

As loss of blood tends to increase shock and lower the resistance, all bleeding during the operation must be controlled. This may be done quite effectively by the continuous irrigation of hot water, by gauze packing, or by suturing. Some have advocated steeping the gauze in epinephrin. The bleeding will be found to be usually venous in character, which means that by keeping well within the capsule, while enucleating the gland, its amount may be reduced. Hypodermoclysis, or the intravenous injection of normal saline solution, during the operation is rec-



commended as a useful stimulating adjunct. While the author does not underestimate the value of these procedures, he has never found it necessary to resort to the same at that time. The drainage-tube should be one of large caliber with lateral openings, as well as terminal, in order to lessen the danger from folds of mucous membrane and large clots of blood.

The post-operative treatment begins as soon as the patient leaves the operating-table, the most important factor in local care being the proper maintenance of continuous drainage. For this many prefer and recommend a two-way catheter, or a catheter in the urethra and drainage in the bladder with a continuous irrigation of water, normal saline solution, or boric acid solution. Should a post-operative hemorrhage occur, it might become necessary to pack the prostatic pocket with gauze, even at the risk of sepsis or necrosis. Kolischer speaks of putting a Barnes' bag into the rectum and a sand-bag on the abdomen as a counter-pressure. He also recommends the use of ten cubic centimeters of serum to be given hypodermatically. After the patient is put to bed I make it a rule, as a part of the

after-treatment, to give tap-water, normal saline, or glucose solution per rectum by the drop method. I believe these patients should be encouraged at all times to drink freely of water.

The question of early sitting up or getting out of bed is still a debatable one. It is true that old people do not stand confinement well over a long period of time, but that they are too often dragged out of bed too soon is likewise true. I have found it advisable on the average to permit the patient to sit up with a back-rest on the third day; and from then on he is encouraged to sit up more and for longer periods of time as his strength permits. If found necessary, the kidneys may be stimulated to increased elimination by the use of diuretin. The heart-action must be watched and carefully guarded. Signs of impending uremia must be carefully noted, in order that prompt attention may be given to ward off this unfortunate complication. Sweating, hot packs to the kidneys, and venesection, if the tension be high, should be instituted immediately. Instrumentation, such as the passing of sounds, should be put off until the tenth day.

## BOOK NOTICES

THE TREATMENT OF FRACTURES, With Notes upon a Few Common Dislocations. By Charles L. Scudder, M. D., Surgeon to the Massachusetts General Hospital; Associate in Surgery at the Harvard Medical School. Eighth edition, revised and enlarged. Octavo volume of 734 pages, with 1057 original illustrations. Published by W. B. Saunders Company. Polished buckram, \$6.00 net; half morocco, \$7.50 net.

Since the last edition of Dr. Scudder's work upon fractures, the operative treatment has been much more extensively employed and greatly modified, but Dr. Scudder is very conservative in recommending the operative treatment for fractures. He urges a more careful diagnosis and a more painstaking endeavor to obtain the desired results by other means. He emphasizes the treatment that has stood the test of time and experience, and suggests that these methods should be used, instead of operation, when possible, selecting only such cases for operation as will positively give better results by that method.

While the author alludes to autogenous bone-graft in his preface as the greatest recent advance in the treatment of certain ununited fractures, he does not consider the subject further in his text, presumably because of the limitations of the work and some remaining uncertainties connected therewith.

The notes upon common dislocations are short but practical.

A full chapter is found in this work upon fractures of the humerus, and another upon the femur.

Injuries of the skull are considered as thoroughly as could be done in a volume of this size, this chapter being very well illustrated.

The changes and illustrations added to the last edition greatly enhance its value.

The one upon fractures of the spine is up-to-date and most interesting.

This deservedly popular work will unquestionably meet the demands for which it was intended.

—BENJAMIN.

DISEASES OF THE SKIN AND THE ERUPTIVE FEVERS. By Jay Frank Schamberg, M. D., Professor of Dermatology and Infectious Eruptive Diseases in the Philadelphia Polyclinic and College for Graduates in Medicine. Third edition, revised. Octavo of 585 pages, 248 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$3.00 net.

Schamberg's book is essentially one for the general practitioner and not for the dermatologist. Emphasis must be made on this point, since practically one-fourth of the entire work is devoted to the infectious eruptive fevers.

Most attention is given to the symptoms and diagnosis of the commoner skin diseases, the rarer ones being dismissed with very few words. Considerable space is given to the eruptions of syphilis, but only a paragraph or two to the treatment, no effort being made to outline a definite course of treatment for the various stages of the disease.

The book is well and concisely written, largely in a personal vein, there being no references or bibliography. The paper, type and illustrations are good, and the book is, altogether, one of the best of the small books on this branch of medicine.

—IRVINE.

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NOVEMBER 15, 1915

## A NATIONAL HEALTH WEEK

A plan for the observance of a national "Health Week," December 6-12, has been announced by the National Association for the Study and Prevention of Tuberculosis. This plan includes the holding of a Health Enforcement Day, a Medical Examination Day, Children's Health Crusade Day, and Tuberculosis Sunday.

On Health Enforcement Day interest will be focused upon the checking up of unsanitary conditions in all groceries, bakeries, and restaurants, and the enforcement of existing health regulations, such as the antisputting law, etc. The newspapers will publish complaint blanks to be filled out by people and sent in to the Board of Health.

Medical Examination Day is set for Wednesday, December 8, and will be the first effort on a national scale to urge an annual physical examination for everyone. Plans for the day include an appeal to induce everyone, sick or well, to see a doctor and learn whether he is in good physical condition. The scheme includes also the inauguration on the part of factories, stores, and offices of an annual physical examination for all employees. Thousands of antituberculosis as-

sociations, other societies, and dispensaries all over the country are expected to co-operate in furnishing free examinations for those not able to pay a physician.

Children's Health Crusade Day on Friday, December 10, is planned to interest and instruct school-children in healthful living. Special exercises will be held at which lectures, essays, and playlets will be given on the subject of health.

The culmination of the campaign will be the sixth annual celebration of Tuberculosis Sunday. Last year on Tuberculosis Day over 100,000 churches gave attention to the subject of tuberculosis by sermons, talks, and announcements. The governors of all of the states have been asked to issue proclamations calling attention to the importance of increasing the knowledge of the public on how to avoid consumption. Clubs, lodges, and societies have also been asked to consider the subject at a meeting either on Tuberculosis Sunday or some other day of Tuberculosis Week.

A pamphlet on what physical defects one should look for may be secured from the National Association or from the Minneapolis Anti-Tuberculosis Committee, 25 Old Chamber of Commerce, Minneapolis.

## THE SCHOOL FOR FEEBLE-MINDED AT FARIBAULT

On Monday, October 18, the Minnesota Neurological Society held its first fall meeting at the School for Feeble-minded in Faribault, and if all county and district societies would arrange to meet at Faribault, the doctors of this state would be as pleased as were the neurologists.

The institution has grown tremendously. The editor has reason to speak of this particularly, because he took from St. Peter and Rochester State Hospitals the first consignment of thirty feeble-minded children and adults. The original institution then was a frame house of modest size and appearance, since burned down. The present group of buildings is located on a plot of over one thousand and fifty acres of land, and the population of the school is more than sixteen hundred. The main building houses the official bodies, the teachers, and the industrial departments, and contains the auditorium and the living quarters for a number of children. The outlying buildings are either hospitals, custodial buildings, or colony buildings. The last named are two or three miles from the main building, and house the lower grades of defectives,—those who can

work on the farm, and those who are unable to gain advancement from the higher industrial pursuits.

Of course, among such a number of children there are a number of very interesting cases, and Dr. A. C. Rogers and his staff presented a clinic that was interesting, including a large variety of unusual nervous diseases, focal as well as general, occurring among the feeble-minded. Of course, there are a number of freak cases, such as microcephalous, macrocephalous, hydrocephalous, and many forms of paralysis, mainly congenital in origin.

One of the most valuable efforts of the staff is to grade the pupils according to their mental age, regardless of their chronological ages, and for that purpose the Binet and Simons test, or modifications that have been worked out by Dr. Kuhlmann, have done much to segregate types and classes of the feeble-minded. It also has a high value from a prognostic point of view. Although these methods are not entirely satisfactory, they are approximately correct and the best we have.

Perhaps the most interesting feature at the School is the Industrial Department, presided over by Miss McLean and her corps of sixty teachers. The Montisori method is used in teaching children to play accurately and to exercise their feeble functions in an unconscious and easy method. Rooms are devoted to these simpler forms of teaching, and one finds a room containing one or two dozen children three years old mentally, who range from five to sixteen chronologically; and it is rather astonishing to see how much has been gained in this direction. Of course, other methods of play are employed in which instruction is the expected result. Then, too, the children are taught the various domestic arts and crafts,—basket-making, tailoring, lace-making, dressmaking, printing, rug-weaving, the making of nets and hammocks and the manufacture of brushes of all sorts and kinds which are supplied to the other State institutions, thereby producing a small revenue. The domestic arts are carried to a very high degree of success, and both women and men learn how to sew and cut and to make garments for the entire school. Knitting and weaving of clothing and caps furnishes all of the school with its winter outfit. Carpentry is taught to the boys; and the manufacture of articles exhibited in the work-room shows a very high degree of success. The rug-weaving department is a very interesting one; and the visitors were very much impressed with the designs and the skillful weaving of rugs of all sorts.

One of the workers at the loom has only been there a year. She was fortunately endowed with an intelligence and measured up to a very good standard mentally, and on that account and from the fact that she was interested in the work, she has perfected designs of her own making and the weaving of rugs and mats and bags seemingly as good as can be made elsewhere.

Industrial occupation is one of the things that doctors must consider more closely, for it is the one thing that furnishes occupation, diversion and recreation. Miss McLean is an experienced principal; and with all of her workers she studies each individual case, and all are tried out in various occupations before they are finally placed definitely in one room. The one feature which Miss McLean insists upon is, that the children must not be overworked, because it is realized that the feeble-minded tire very easily, and their occupation must necessarily be short and particularly diversified. In that way the best results are obtained. From five to fifteen minutes may be devoted to one method of play or work, when something else is immediately substituted. In this way their work does not cause tire, and a great deal of amusement is furnished for the children.

One other feature which is very laudable and should be recognized by the general practitioner is, that no backward or deficient child should be scolded or punished in any way, either directly or indirectly. They are all encouraged in everything they undertake, and, if their methods are not right, they are taught some other way of producing the best result.

The entire institution is kept scrupulously clean. Of course, there are plenty of workers for this purpose, and although the work may be done by employees they are assisted by the pupils and inmates. The children are all seemingly happy and contented, and they are amply and abundantly fed, well cared for, and the promising ones are advanced as rapidly as possible. This is due to the management, the instruction, and the occupation.

Dr. Rogers is to be particularly congratulated upon the success of this one of Minnesota's great institutions.

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#### A NEW MEDICAL JOURNAL

THE JOURNAL-LANCET heartily greets the *Journal of Laboratory and Clinical Medicine*, and with its greeting congratulates the editor upon the appearance of the first number of volume one.

Dr. Victor C. Vaughan is editor-in-chief, and



the *Journal* is published in St. Louis by the C. V. Mosby Company, at \$3.00 per annum. It is well printed, and contains a very satisfactory line of advertising; and nothing appears in its advertising columns that is at all objectionable. Its editorial department is evidently written with great care, and not like the average hurried editorials that are commonly found in medical journals. The editor of THE JOURNAL-LANCET speaks very feelingly on this subject, and wishes that his efforts might approach the efforts of Dr. Vaughan and his collaborators. The original articles are from men of repute, and are on subjects that are interesting to the general medical practitioner. These are not merely abstracts, but the original articles entire, and its editorials are based upon wide reading and familiarity with the literature on the various subjects.

We prophesy that the new paper will be a lasting one, and will be well received.

#### AN EPIDEMIC OF POLIOMYELITIS

The district of St. Cloud, which embraces a part of Stearns County and adjoining counties, has been recently the seat of an epidemic of poliomyelitis. Seventy-five cases in all were discovered, and, strange as it may seem, and showing the great indifference that the medical profession constantly exhibits, only now and then a case was reported to the State Board of Health at the outbreak of the epidemic.

The Division of Epidemiology of the Board is constantly sending out cards with full instructions about the reporting of preventable diseases, and among them poliomyelitis is a reportable disease. One of the epidemiologists, Dr. Greene, went over the territory, and was shown by the physicians all of the cases, mild and severe; and that may explain why some of the cases were not reported.

The St. Cloud district has a group of medical men who are intelligent and thoroughly qualified from every point of view; and, fortunately, all of the cases of poliomyelitis were recognized, and, also, fortunately, the majority of them were mild in type, although there were one or two deaths and one or two very severe cases. No further evidence of an epidemic has developed, and the probabilities are that the situation is now clear.

No one has been able to explain the cause of the outbreak. The first case occurred in a small outlying district. The other cases occurred in various parts of the territory, with a large percentage

of them in St. Cloud, or at least such cases were attended by St. Cloud physicians. That poliomyelitis is a fly-borne disease is still possible, but no one was able to definitely decide how the first case of this epidemic originated, or how other cases developed, except in a few families where there were more than one case. In some families two and even three cases were reported, so there must have been some means of distributing the infection by contact or by association, or perhaps from the same underlying cause.

#### AN EXPLANATION TO OUR READERS

THE JOURNAL-LANCET for the past year or two has been unable to take care properly of the papers submitted to it for publication. This indicates, we think, a large and a healthful growth in the output of Northwestern medical literature. It also indicates, possibly, a growth in the length of many papers. That is not healthful, for the long paper, if "padded," will not be read; and so the good may be buried with the bad in such papers.

We are pleased with the increase in our medical literature; and we hope for a still further increase in the quality of such literature. We publish in this issue no Association papers, in order to make room for papers that we have held already too long; and hope to give our friends better treatment in the future, but, in order to do so, we must have their co-operation, best given in the form of short papers, which is the demand of most societies before which papers are read, and is the unexpressed, but *enforced*, demand of readers.

### MISCELLANY

#### SOUTH DAKOTA AND THE "CHIROPRACTORS"

The Council of the South Dakota State Medical Association has obtained the opinion of the Attorney-General of that State upon the construction of the medical-practice act of that State in its relation to the practice of medicine by the so-called "chiropractors." The secretary of the Council, Dr. Harry T. Kenney, has kindly furnished us a copy of the opinion, which seems to us unusually clear and able, with the added interest of some court decisions outside of South Dakota.

## THE OPINION

Section 21 of Chapter 109 of the Laws of 1913, reads as follows:

When a person shall append or prefix the letters M. B. or M. D., or the title of Dr. or Doctor, or Specialist or any other sign or appellation in a medical sense, to his or her name, or shall profess publicly to be a physician or surgeon, or who shall recommend, prescribe or direct for the use of any person any drug, medicine, apparatus or other agency for the cure, relief or palliation of any ailment or disease of the mind or body, or for the cure or relief of any wound, fracture or bodily injury or deformity, after having received or with the intent of receiving therefor, either directly or indirectly, any bonus, gift or compensation, shall be regarded as practicing within the meaning of this act.

Section 23 of the same chapter prescribes a penalty for any person "who shall practice medicine, surgery, obstetrics or any of the branches thereof, in the State of South Dakota, without having obtained a license," etc. The question that you present is therefore whether one who practices the art of healing known as "Chiropractics" or who holds himself out as a "Chiropractor" comes within the provisions of the statutes of this state above quoted.

Our court, so far as I can discover, has not construed the above statutory provision with reference to "Chiropractics," but I find that the courts of other states are divided upon the question that you present, some holding that licenses are required, while others hold to the contrary, depending upon the peculiar wording of the statutes involved. You will notice that our statute mentions several different acts which constitute "practicing" within the meaning of the statute. One who appends or prefixes the letters "M. B." or "M. D." or the title Dr. or Doctor or Specialist, or any other sign or appellation in a medical sense to his or her name, violates the law; also one who "shall profess publicly to be a physician or surgeon"; also one who "shall recommend, prescribe or direct for the use of any person, any drug, medicine or apparatus or other agency for the cure, relief or palliation of any ailment or disease of the mind or body, or for the cure or relief of any wound, fracture or bodily injury or deformity." You do not state exactly what the evidence will show in your case, except that the person is practicing "Chiropractics," and is advertising himself as a "Chiropractor." If the person to whom you refer is using any of the letters or titles above mentioned in connection with his name, in my opinion he would be using these "in a medical sense" within the meaning of this statute, and he would therefore

be violating the law. But is the art of healing as practiced by the Chiropractor a violation of the above statute? This statute was construed by our supreme court in *State vs. Yegge*, 19 S. D. 234, and in that case the court held that one who prefixes "Dr." to his name and holds himself out as a practitioner of "Ophthalmology, a science for the analysis of the cause of human ills and how to abolish them," and who professes to cure human ailments by removing the cause thereof through the use of glasses, strictly without drugs or medicine, violates the law of this state above quoted. The court in that case used the following language:

The evidence seems to be uncontradicted that the plaintiff in error did, upon a sign in front of his office, and in the notice published, prefix to his name the letters "Dr." and it is quite clear from the evidence that they were used in a medical sense, and we are of the opinion that the jury was fully justified in so regarding them.

The Legislature evidently intended, in enacting the law, to prevent persons not properly educated in the science of medicine from assuming to act as a physician, and to protect the public, and it has deemed it proper that every person assuming to act as a physician or surgeon should be properly licensed. In carrying into effect this law, it was competent for the Legislature to define, as it has assumed to do in section 21, what evidence shall be deemed sufficient to constitute a practitioner within the meaning of the act. In view of the testimony of the physicians as to the proper definition of ophthalmology, it is quite clear from the advertisement of the plaintiff in error that he had assumed to hold himself out as a physician within the meaning of the act. And it is not only clear from the language of the advertisement itself, which would be generally understood as an assumption on his part of being a regular physician, or at least a specialist in that branch of medicine treating of ophthalmology, but the Legislature has declared that prefixing the term "Dr." to his name shall be so regarded. The law should not be so construed as to deprive the people of the benefits intended by the act, but such a construction should be given it as to carry into effect the evident intention of the Legislature.

In view of this decision, and from such knowledge of the principles and practices peculiar to Chiropractics as I have, it is my opinion that one who pretends to cure human ailments or to remove the causes thereof, after the manner of the Chiropractor, violates the statute of this state above cited, unless he has a license issued by the Board of Public Health and Medical Examiners. The Chiropractor does not use drugs or medicine, but, in my opinion, he does prescribe "apparatus or other agencies" for the cure of human ailments, within the meaning of the law.

In support of this conclusion I refer you to the

following cases which involve the practice of Chiropractics:

*State vs. Smith* (Mo.) 33 L. R. A. (N. S.) 179.

*State vs. Johnson* (Kan.) 41 L. R. A. (N. S.) 539, 114 Pac. 390.

*State vs. Miller* (Ia.) 124 N. W. 167.

The following cases involve practice in special arts of healing other than Chiropractics, and support the above conclusion:

*Smith vs. People* (Col.) 36 L. R. A. (N. S.) 158.

*Witty vs. State* (Ind.) 25 L. R. A. (N. S.) 1297.

*State vs. Bresse* (Ia.) 114 N. W. 45; 24 L. R. A. (N. S.) 103.

*State vs. Gallagher*, 143 S. W., 98; 38 L. R. A. (N. S.), 328, and *State vs. Liffing* (Ohio), 46 L. R. A. (N. S.), 334, are contrary to the above conclusion, but these cases, while they involve statutes very similar to our own, went to the higher courts upon demurrers to the indictments, and the exact manner in which the treatment under consideration was given, was not clearly before the court. Besides, our statute differs from the statutes of Ohio and Arkansas in that our statute includes with the terms "drug," "medicine," and "other agency," the term "apparatus," which fact, it seems to me, renders the reasoning of the courts of Ohio and Arkansas inapplicable to the South Dakota statute. These other courts hold that "other agency" cannot be given its broad, literal meaning, but must be restricted to the agencies like or similar to drugs and medicines. Our Legislature's use of the term "apparatus" clearly indicates the legislative intent that the statute should apply to agencies that are not at all related to drugs and medicines and the principle *noscitur a sociis* does not apply.

Further, as evidence of the legislative intent in enacting the South Dakota statute, your attention is called to Section 4 of Chapter 195 of the Laws of 1907, upon the subject of Osteopathy. Section 21 of the 1913 act above cited is substantially the same as Section 21 of Chapter 176 of the session laws of 1903. And this 1907 statute on Osteopathy was therefore passed subsequent to the passage of the general statute that is here involved. This 1907 statute provides that Osteopathy is not to be regarded as the practice of medicine within the meaning of the 1913 act. In passing this 1907 statute there is the clear implication that without it the practice of Osteopathy would be forbidden by law in this state. While of course Osteopathy is a different

art from Chiropractic, yet they are sufficiently similar to come within the same category so far as our purposes are concerned in construing these statutes.

In case of a prosecution of a Chiropractor for violating the statute above quoted, I would advise, if the evidence will warrant, that the defendant be charged with violating the first provision of Section 21 above quoted as well as the provision following.

Yours truly,

CLARENCE C. CALDWELL,

Attorney-General.

## NEWS ITEMS

Dr. J. D. Budd, of Two Harbors, has located in Duluth.

Dr. L. N. Anderson, of Duluth, is in Los Angeles, Cal.

Dr. A. MacDonald has moved from Morris-town to St. Paul.

Dr. James Semple, of Langdon, N. D., has moved to Minot, N. D.

Dr. Hugo Branyan, of Champaign, Ill., has located at Clyde, N. D.

Dr. J. C. Alexander, of Hope, N. D., was killed on Nov. 7 in an automobile accident.

The new \$27,000 hospital of Dr. B. H. Sprague, at Huron, S. D., has been opened to the public.

Dr. C. J. Michael, of St. Paul, has returned from the East, where he spent six weeks in neurological clinics.

Drs. Bronson Crothers and E. T. F. Richards, of St. Paul, have gone to Europe to enter the medical staff of the English army in the war zone.

Dr. W. R. Cullen, of Lake Crystal, has retired from active practice, and has been succeeded by Dr. H. O. Williams, formerly of Balaton.

St. Barnabas Hospital, Minneapolis, hopes to raise \$225,000 for new buildings. The building most urgently needed is one for clinical and dispensary purposes.

Sixty guests were present at the dinner given last month by the Ladies' Auxiliary of the Hennepin County Medical Society in honor of the club's fifth anniversary.

Goodhue county's new tubercular sanatorium at Mineral Springs was opened and dedicated to



the public the first of this month. The building was erected and equipped at a cost of \$36,000.

The new St. John's Hospital, of St. Paul, was dedicated and opened to the public Sunday, November 7. The building is a model of modern hospital construction. It has accommodations for between 60 and 80 patients.

Dr. W. M. Bartley, for many years a resident of Shyenme, N. D., died at his home Nov. 6, of diabetes at the age of 45. At the time of his death he was a member of the lower house of the North Dakota State Legislature.

In our issue of October 15 we stated that Dr. A. V. Young, of Hankinson, N. D., had moved to Duluth and become associated with Dr. D. E. Seashore. Dr. Young has moved to Duluth, but is in no way associated with Dr. Seashore.

The annual meeting of the Southern Minnesota Medical Society will be held on November 30 and December 1. The program contains fourteen papers, with excellent titles. It is quite important to make hotel and banquet reservations in advance.

The Clay-Becker Society of Minnesota met last month in Fargo, N. D., and had as guests a delegation from the Cass County (N. D.) Society. Officers were elected as follows: President, Dr. G. L. Goslee, Moorhead; vice-president, Dr. H. J. Thornby, Barnesville; secretary-treasurer, Dr. Haight, Audobon; delegate, Dr. W. J. Awty, Moorhead.

The Upper Mississippi Society met at Brainerd on November 6. Surgical clinics were given at the Northern Pacific Hospital by Drs. Ide and Evert, and at St. Joseph's by Dr. Thabes and his associates. Dean Lyon and Dr. C. M. Jackson, of the State University Medical School, and Dr. J. C. Litzenberg, of Minneapolis, were among the visitors and took part in the meeting.

The divisions of ophthalmology and pediatrics in the Medical School of the University of Minnesota have been changed to departments. Dr. Frank C. Todd was elected chief of the Department of Ophthalmology and Dr. J. P. Sedgwick, chief of the Department of Pediatrics. As chiefs of these departments they become members of the Administrative Board of the Medical School.

United States officials have discovered that imitations of neosalvarsan and aspirin have been sold to druggists, and especial warning is given against the danger of using the former substitute, which is administered hypodermically.

These dangerous substitutes do not reach druggists through the usual trade channels, but are sold and delivered by traveling agents, thus practically notifying the druggists that fraud is practiced.

Dr. Leonard G. Rowntree, of Johns Hopkins, has been chosen chief of the medical department of the Medical School of the University of Minnesota, the position held for many years by Dr. Charles Lyman Greene, of St. Paul. Dr. Rowntree enjoys a very high reputation as a medical man, and it will be hoped by all that his work may be eminently successful. He succeeds a man also with a very high reputation for scholarship, as well as for executive ability.

The Lake Preston District Medical Society of South Dakota met at Huron, S. D., on Nov. 3, and had an interesting discussion on obstetrics. In the past year the Society has increased its membership from 23 to 40 members. The next meeting will be held on Dec. 1 at Lake Preston, and the subject for discussion will be contagious diseases. The officers elected for 1916 are as follows: President, Dr. E. H. Grove, Hetland; vice-president, Dr. B. T. Green, Brookings; secretary-treasurer, Dr. L. N. Grosvenor, Huron.

The week of December 6 to 12 has been set aside for a special educational campaign throughout the country by the national and all local anti-tuberculosis organizations. In Minneapolis one hundred talks will be given in the shops and factories of the city, and distinguished speakers from Chicago and elsewhere will address large gatherings of business men. The Anti-Tuberculosis Committee of the Associated Charities is preparing for a great campaign in this line of work; and very important results will surely follow their efforts.

Dr. H. M. Bracken, head of the Minnesota State Board of Health, has issued a warning against solicitors of funds for the Children's National Tuberculosis Society, who are working in the northwest. The Merchants' and Manufacturers' Association of Milwaukee found that fifty young women are selling a publication called "Our Tubercular Children" to raise money. A small part of the proceeds goes to the society, which is said to have a home in New Mexico for tubercular children. The Milwaukee business men's association has not yet located the home.

The Blue Earth County Society held its thirteenth annual meeting at Blue Earth on October 28, with an attendance of twenty-six. Papers

were read by Dr. C. E. Wilson, on "Infections in General"; by Dr. W. S. Nickerson, on "Histological Observations Concerning Achondroplasia"; and by P. H. Blong, on "Clinical Notes on Typhoid Fever." Dr. Nickerson showed a number of interesting specimens with his microscope. Drs. N. P. Anderson and H. B. Bailey were elected members. The following officers were elected for the current year: President, Dr. O. E. Stewart; vice-president, Dr. H. G. Bickford; secretary-treasurer, Dr. J. A. Broberg.

#### SALARIED POSITION OR LOCUM TENENCY WANTED

By an America doctor thirty years of age who has had four years of hospital work and general practice. Address 273, care of this office.

#### LOCUM TENENS WANTED

I want a regular experienced physician to take my practice for two months, beginning Jan. 15, 1916. Location northeastern South Dakota. Liberal proposition for right man. Address 276, care of this office.

#### POSITION WANTED

Young lady with experience in physician's office and some hospital training, who can assist with dressings, would like to act as an attendant in busy physician's office. Address 277, care of this office.

#### PRACTICE IN MINNESOTA FOR SALE

One of the very best opportunities for surgery and general practice. Having other business, I will sell out cheap. Town modern in every respect; railroad center. Address 272, care of this office.

#### ASSISTANTSHIP WANTED

Assistantship wanted with busy physician and surgeon. Age, 30, A. B., M. D., Class A school, excellent hospital training and experience in general practice, good appearance, no bad habits, can furnish references. Address 266, care of this office.

#### COUPE BODY FOR SALE

I offer my coupe body, aluminum; seating capacity, four; large place in rear for two tires; good-looking; in good condition, except it needs painting. Cost \$500. Will sell for cash for \$150. Dr. F. C. Todd, 506 Donaldson building.

#### MINNEAPOLIS OFFICE FOR RENT

Will rent my office, on Nicollet Ave., with good furniture, modern operating table, instrument and medicine cabinet, Fairbanks scale, filing cabinet, roll-top desk, etc., in one of the best office buildings in the city. Rent cheap. Address 265, care of this office.

#### POSITION WANTED AS X-RAY OPERATOR AND OFFICE GIRL

University trained young woman, experienced x-ray operator, is open for engagement with physicians or hospitals. Can also take care of office correspondence, accounts and records. References. Address 278, care of this office.

#### OPENING FOR SURGEON

A good surgeon with lots of experience in operating can find a fine location with the best of opportunities at Hannah, N. D. It would pay you to look into the field now open and see what the prospects are and make inquiry. Address Nyal Drug Store, Hannah, N. D.

#### PRACTICE FOR SALE

Minnesota practice of \$4,000 yearly in town of 2,000, county-seat, center of fine farming district; only 2 other doctors; mainly Scandinavian and German population. Place goes for price of 3-room office equipment, furniture, and drugs. Price very low if taken soon. Good reason for selling. Address 275, care of this office.

#### HOSPITAL AND PRACTICE FOR SALE

I have a \$10,000 general practice that I will give to the man who pays me \$2,000 first payment on my office and hospital building, with equipment, and balance, \$1,500, in monthly installments. Established 23 years. A first-class man can get rich here. Address 269, care of this office.

#### PRACTICE FOR SALE

Competent young surgeon to take over my practice and home in Minneapolis. Practice last year \$8,000, surgical and medical. Contract work bringing \$100 a month. Home new and very desirable. Thorough introduction. Price of home, \$8,000; practice free to purchaser. Half cash necessary—no triflers or incompetents. Sickness reason for leaving. Address 264, care of this office.

#### PRACTICE FOR SALE

Southeast South Dakota, 19-year, well-established general practice, only equipment to buy, at low figure; practice \$4,000 a year; collections, 100 per cent; one competitor; population, 1,200; large territory; public, Catholic, and Lutheran schools; some appointments; thickly settled rich farming country; fine roads; practice larger if surgery done; introduction given; only those who are registered in South Dakota or who can register need apply. Address 274, care of this office.

#### FINE LOCATION IN SOUTHEASTERN SOUTH DAKOTA OFFERED

Practice which has averaged over \$4,500 yearly for four years, the books for which will be shown. City of eight hundred; electric lights; water and sewer systems, high school, etc. Five-room office, all modern; also residence, absolutely modern; both at very reasonable rent. One competitor. The purchase of office equipment, drugs, car, etc., is optional. Very little money needed. This is an exceptional opportunity for a physician to step into an established practice, and do a good business from the start. I am leaving for post-graduate work and a larger field. If interested answer at once and make arrangements to come and investigate this proposition. Address 268, care of this office.

#### DOCTOR

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-ninth annual session opens September 27, 1915, and closes June 3, 1916. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.

DEATHS REPORTED TO THE STATE BOARD OF HEALTH OF  
MINNESOTA FOR THE MONTH OF AUGUST, 1915

REPORTED FROM 83 CITIES HAVING A POPULATION OF 1,000 OR UPWARDS

[illegible]



REPORTED FROM 53 VILLAGES HAVING A POPULATION OF 1,000 OR UPWARDS

VILLAGES	Population U. S. Census of 1900	Population U. S. Census of 1910	Total Deaths	Tuberculosis of Lungs	Other Forms of Tuberculosis	Pneumonia	Diphtheria	Scarlet Fever	Measles	Small Pox	Whooping Cough	Acute Anterior Polyomyelitis	Epidemic Cerebro- Spinal Meningitis	Typhoid Fever	Diarrheal Diseases of Children	Cancer	Puerperal Septicemia	Accidental Deaths
Adrian	1,258	1,112	2															
Altkin	1,719	1,633	2	1														
Akeley			0															
Appleton	1,184	1,221	0															
Belle Plaine	1,121	1,204	0															
Biwabik		1,690	0															
Bovey		1,377	*															
Browns Valley	721	1,058	1															
Buffalo	1,040	1,227	2		1													
Caledonia	1,175	1,372	2															
Cass Lake	546	2,011	2															
Chisholm		7,684	5	1											1			
Coleraine		1,613	1															
Delano	967	1,031	0															
Farmington	733	1,024	2													1		
Fosston	864	1,055	1															
Frazee	1,000	1,645	1															
Grand Rapids	1,428	2,239	3															
Hibbing	2,481	8,832	9	1							1				1			1
Jackson	1,756	1,907	0															
Janesville	1,254	1,173	0															
Kenyon	1,202	1,237	1															
Lake Crystal	1,215	1,038	0															
Litchfield	2,280	2,333	5															
Long Prairie	1,385	1,250	0															
Madelia	1,272	1,273	0															
Milaca	1,204	1,102	2								1							1
Mountain Lake	959	1,081	1															
Nashwauk		2,080	1													1		
North Mankato	939	1,279	0															
North St. Paul	1,110	1,404	0															
Osakis	917	1,013	0															
Park Rapids	1,313	1,850	0															
Pelican Rapids	1,033	1,019	2															
Perham	1,182	1,376	1															
Pine City	993	1,258	1															
Plainview	1,038	1,175	0															
Preston	1,378	1,193	0															
Princeton	1,319	1,555	2															1
St. Louis Park	1,325	1,743	2												1			1
Sandstone	1,189	1,818	1															
Sauk Rapids	1,391	1,745	3															1
South Stillwater	1,422	1,343	0															
Springfield	1,511	1,482	1															1
Spring Valley	1,770	1,817	2															
Wadena	1,520	1,820	4	1											1			
Wells	2,017	1,755	1															
West Minneapolis	2,250	3,022	1															
Wharton	1,132	1,300	3															
White Bear Lake	1,288	1,505	2															
Windom	1,944	1,749	1															
Winnebago City	1,816	2,555	1															
Zumbrota	1,119	1,138	0															

## STATE INSTITUTIONS

Anoka, Asylum	2																	
Faribault, School for Blind	0																	
Faribault, School for Deaf	0																	
Faribault, School for Feeble Minded	0													4				
Fergus Falls, Hospital for Insane	0	2																
Hastings, Asylum	1	1																
Minneapolis, Soldiers' Home	2	1																
Owatonna, School for Dependents	0																	
Red Wing, State Training School	0																	
Rochester, Hospital for Insane	8															1		
Sauk Centre, Home School for Girls	0																	
St. Peter, Hospital for Insane	10	2		1														1
St. Cloud, State Reformatory	0																	
Stillwater, State Prison	1																	

## OTHER PARTS OF STATE

OTHER PARTS OF STATE	643	68	7	15	3	3			5	1		2	20	59	2	79
Total for state.....	1549	150	23	41	5	3	0	1	18	2	0	13	71	148	4	139

\*No report received. Registrar not doing his duty.

150 stillbirths not included in above totals.



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A fuller account of the Battle Creek Sanitarium Method of treating drug addiction in its various forms will be sent on receipt of the attached coupon.

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**Box 350**

**The  
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Battle Creek,  
Michigan.**

Please send to the undersigned full information concerning the Battle Creek Method of treating cases of drug addiction.

Dr. ....

Street .....

City .....

State .....

## PUBLISHER'S DEPARTMENT

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It is safe to say that the average physician is called upon to prescribe a tonic more frequently than any one other form of medication, unless it be a cathartic. Patients who are patients solely because they are tired, "run down" and generally debilitated, are constant visitors at the physician's office. Such individuals need something that will boost them up to their normal point of resistance and then hold them there: in other words, not a mere temporary stimulation, with secondary depression, but a permanent help to the revitalization of the blood and a general reconstruction. Pepto-Mangan (Gude) is not only prompt in action as an encourager of appetite and better spirits, but is also distinctly efficient as a blood builder and systemic reconstituent. It is pleasant, non-irritant, free from constipating effect and does not stain the teeth. It is thus a general constitutional tonic of positive service in all conditions of general devitalization.

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It is now quite popular to form lists of the ten best novels. Such lists have their value; but, we believe, a list of the three or four best non-professional periodicals for a physician's own table possesses far more value, and, so believing, we shall make such a list. We make it in the interest of our readers, and not our advertisers, for the publishers of the periodicals exact the full subscription price from us.

Every physician will take one home daily newspaper. In addition to this we highly commend the Sunday edition of *The New York Times*, which is the greatest newspaper in the world. Its editorials are more widely quoted than the editorials of any other American newspaper. Its news covers the world, is full, is well written, and is highly reliable.

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The price of the Sunday edition is \$2.50; and the paper reaches our home on Tuesday morning.

The next periodical is a literary, ethical, semi-religious, sociological, and news-comments weekly of unsurpassed excellence, with now and then political and other heresies that are quite objectionable to men who are determined to shield their prejudices from the light of reason.

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The next indispensable periodical for every man who reads is a monthly. On the part of some readers an *acquired* taste is necessary to place upon their table the best American monthly published at any time during the past fifty years. This can refer to but one magazine, and that is the *Atlantic Monthly*, whose price is \$4.00 a year.

We cannot refrain from adding one more periodical to the list, although its character does not commend it to all readers, and yet men wholly devoid of taste in its line, if there be any such men, should read it as a matter of mental discipline, and for the sake of dispelling harmful prejudice and, possibly, superstition.

We refer to the *Scientific American*, which, in our opinion, should be placed in the hands of every boy in America. Its price is \$3.00 a year.

The above list is only one-fifth, in number, of the periodicals on our own table; but it is more than four-fifths in value.

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# THE JOURNAL- LANCET

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North Dakota and South Dakota State Medical Associations

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No. 23

## OPEN-AIR TREATMENT IN SURGERY\*

By J. W. MARKOE, M. D.

Medical Director and Attending Surgeon of the Lying-in Hospital, Etc.

NEW YORK CITY

There is, within the reach of all, air and sunshine sufficiently pure and constant to be of the greatest aid in the treatment of surgical cases, even where the surgeon's practice is in the crowded city or where the homes and climatic conditions are such that it would seem to be impracticable.

This subject has, therefore, been chosen for your consideration in the hope that a knowledge of the action of these agents will stimulate to their more frequent use, not only those who have the facility for open air treatment in properly equipped hospitals, but also those whose work is in private homes. It is to be regretted that in the comparatively few instances where it has been used that this treatment has been taken advantage of only in the more desperate cases and as a last resort, rather than as a routine, and also that it is but rarely thought applicable to minor cases, where I feel sure much more rapid recoveries would be the outcome of its systematic use.

Among the ancients, the bath and the exposure of the human body to the elements was practiced extensively, and not infrequently for the cure of maladies, both medical and surgical; and now in modern times its employment in tuberculosis is general throughout the civilized world with incalculable benefit; yet its use in general surgery has not been universally adopted. Spallanzani, many years ago, showed that molds

and fungi when exposed in the air to the direct rays of the sun, died in a very short time, and today our bacteriological workers have demonstrated by innumerable experiments that all micro-organisms are inhibited in their development or totally destroyed by the rays of the sun. The effect of the sun upon protoplasm has as yet not been worked out so carefully that we are able to divide the spectrum into its component parts and use each of them as we see fit for its therapeutic influence. To be sure, we have the Röntgen ray and the gamma ray and others, but we cannot say just what action the solar rays really have. Dr. Bovie, in his article "Action of Light on Protoplasm," states that it is his belief that the physiological effect of light must be the result of photochemical reaction, inasmuch as only those electromagnetic waves that are absorbed are capable of bringing about physiological changes. One of the most important discoveries made by Finsen, says Bovie, is, that the blood in the skin absorbs most of the ultraviolet light. These ultraviolet rays can penetrate the normal skin only a fraction of a millimeter; but, if the skin is made anemic by pressing out the blood, bacteria can be killed by means of the rays even after the passage through 4.25 millimeters of skin. Thus, cases suffering from the anemia of hemorrhage or anemia from any cause, should be much more carefully exposed than those where the skin has a normal blood supply.

In foreign countries, and in localities where circumstances are such that hospitals can be

\*The address in Surgery, delivered at the 27th annual meeting of the Minnesota State Medical Association, at Rochester, Minn., September 30, 1915.

built on the pavilion plan, it is almost always found that they are provided with large open loggias exposed to the air on three sides, allowing the patients to be moved directly from the enclosed wards into the air and sunlight, but few are found that are not intended merely as a means of providing better air for the patient's comfort and diversion, rather than for the actual benefits to the lesion from which the patient is suffering. Crile lately, in an article entitled "Notes on Military Surgery," speaks enthusiastically of the use of the open-air treatment of wounds in the military hospitals in France; and, undoubtedly, much more evidence of its use and benefit will be forthcoming when the medical and surgical work of the army surgeons has been recorded, and I trust there will be a more systematic and more general use evolved for its as yet undeveloped tonic and healing effect in surgical conditions, especially where infection is a complication.

The literature on open-air treatment is rather extensive, but few speak particularly of its use in surgery. Aimes, in an article in *La Presse Medicale*, is one of those who refers to the effect of heliotherapy in non-tubercular affections. In this article he points out its value under general effects and local effects; and his conclusions are, that its value is proven in such local lesions as ulcers, inflammatory exudates, and delayed union in fractures.

Dr. Willy Meyer, in his interesting article on "Open Air and Hyperemic Treatment as Aids in Management of Complicated Surgical Tuberculosis in Adults," says there are cases where bone tuberculosis cannot be helped by surgery alone, as, for example, in affections of the sacrum, the sinuses of hip-joint disease, and the cold abscess resulting from lesions of the pelvic bones. Here open air saves life and limb. He mentions three cases, giving the details of their interesting progress.

Dr. Pryor, of Buffalo, New York, has lately published an article on the Rollier treatment for so-called surgical tuberculosis, in which he describes a systematic plan of exposure. He considers that the insolation should be very gradual and slowly completed, the diseased part being kept covered, and exposed to the sun only after the coat of tan is existent over the remainder of the body. He follows the rules laid down by Rollier, as follows:

The patient is first made accustomed to the open-air life by sleeping out of doors for about

a week. In preparation for the sun-bath there is always included protection from wind or draft, and on the first day every part of the patient is covered except the feet, which are exposed to the direct sun's rays for five or ten minutes three or four times at hourly intervals. On the second day the feet are insolated ten minutes, and the legs from the ankles to the knees five minutes, three or four times at hourly intervals. On the third day the feet are insolated fifteen minutes, the legs from the ankles to the knees ten minutes, and the thighs five minutes, three or four times at hourly intervals. On the fourth, fifth and sixth days the insolations are increased five minutes each day. Then, if all conditions are favorable, the patient is turned on his abdomen, and the same routine is repeated, so that the whole body is thoroughly tanned; finally, the diseased part is exposed and tanned as deeply as possible, the utmost care being taken to prevent burns or dermatitis. After several weeks the insolation is practiced from four to six hours a day. He states that Rollier believes that improvement progresses in close relation to the extent of pigmentation. Gradually the patients become so toughened that those who are physically able are allowed to play games with almost the entire body uncovered in a temperature well below the freezing-point without any ill effects and with continued benefit. One point that he makes seems a step in the right direction. Heavy dressings are not applied to wounds, but, instead, they are treated with the light and air protected only by a thin piece of gauze or, in cases where the discharge is profuse, only by enough gauze and cotton to absorb it. This has led me to believe that in general surgical cases we must adopt some such systematic use of the air and sun if we wish to succeed in obtaining more satisfactory results than can be obtained by other methods. It is evident that different climates will modify the length of time of exposure and the duration of the treatment; but that it is possible in all climates seems certain.

An article by Young and Williams of Boston recently appeared detailing the results in puerperal cases which were treated in the Boston City Hospital. They reported a series of one hundred and thirty-three severe puerperal infections treated in the open air, in which, at the time of admission, the sepsis was already well advanced. The mortality was 24 per cent, excluding from calculation cases in which death occurred within forty-eight hours of admission to the hospital.



It must be remembered that the cases which find their way into city institutions are usually only of the most severe type, entrance into a hospital being a matter of necessity on both the patient's and the attendant's part, and rarely a matter of choice. Of course, a public hospital should never refuse admission because a patient has been neglected before admission, or because a fatal issue is imminent; and yet such cases, which seek access to hospitals everywhere, swell the mortality records of such institutions, and vitiate a comparison in results between them and private institutions, or even private practice. In New York City, especially in the Lying-in Hospital, we have our share of such cases. Where a woman is admitted with a sloughing, gangrenous perineum, extending to the cervix and interior of the uterus, where a patient on admission has evidence of general peritonitis of several days' standing and comes in a terminal stage, or where there is a ruptured uterus and the patient is moribund, no treatment, no matter how theoretical or practical, and no care is likely to save these patients. Yet these are the cases which have come to us as they come to all hospitals.

In an article published some years ago, I referred to the use of the Solarium in the Lying-in Hospital, and indicated the development from the use of the garden, in the rear of the old building, to the present structure, larger and better situated and yet by no means large enough for the demands at present put upon it. At that time we emphasized the saving power of the open-air treatment in the post-partum cases, where, in addition to the burdens imposed by exhausted vitality, the results of poverty and poor house-surroundings was added infection, sapping the strength of a weakened organism. Unfortunately, only a few striking cases were available to demonstrate the value of the treatment. Since then the Solarium has always been fully occupied; but it is limited in size, and therefore not all our cases needing such help can be treated by this method.

I have selected from the hospital records 110 cases of sepsis, and have considered them under two main groups, namely: those treated in the open air and those treated in-doors. I wish to emphasize the fact that in one group the main therapeutic measure was the open air. In all but five of these cases, blood-cultures, taken by the usual technic under proper precautions and with appropriate media, demonstrated the presence of bacteria. These five are included on account of

their clinical course, the temperature-range, the blood-counts, and the physical findings. In this series the following organisms were recovered from the blood: hemolytic streptococcus in 94 cases, streptococcus viridans in 1 case, pneumococcus in 2 cases, staphylococcus aureus in 7 cases, and bacillus *aërogenes capsulatus* in 1 case. In no case was more than one organism recovered from the blood. There were 16 cases of post-abortive sepsis, 89 cases of post-partum sepsis, sixty-seven of which were admitted from three to ten days or more after delivery, and twenty-two were admitted with labor in progress; and 5 cases of ante-partum sepsis.

This last group of five cases is of interest, for in them, even before the onset of labor, the sepsis was fully developed. In one of these five cases a sinus thrombosis was present; in two the sepsis followed operative interference (one after incision of an abscess of the throat, and the other after the removal of an appendix); in a fourth case the patient, on admission, had already a streptococcus meningitis; while a fifth case showed the presence of a general peritonitis for which no cause was found.

Of these 110 cases, 42 were in the hospital less than five days with a mortality of 100 per cent; and 68 were in the hospital more than five days with a mortality of 66 per cent.

In the last-named series the complications present in the fatal cases were as follows:

1. General peritonitis .....	5
2. Pyemia .....	15
Metastatic abscesses .....	9
Metastatic abscesses and embolism.	1
Metastatic abscesses and choroiditis	1
Pleurisy and pelvic abscess.....	1
Phlebitis .....	1
Bartholinian abscess and pelvic	
peritonitis .....	1
Embolism and mania.....	1
3. Pneumonia .....	4
4. Gangrene of vulva.....	1
5. No complications .....	18

Of the 110 patients, 53 were treated in the open air in addition to the other measures; and 57 were in-door patients, of whom 55 died and 2 left against advice.

Of the 53 cases treated on the roof, 17 were there less than five days, and all died; 13 died who were there more than five days; one left against advice; and 22, or 42 per cent, recovered.

The complications present in the 22 cases that recovered are as follows:

1. Pyemia ..... 6
  - Metastatic abscess ..... 2
  - Metastatic abscess and otitis media 1
  - Suppurative ophthalmia ..... 1
  - Metastatic arthritis ..... 1
  - Cholecystitis ..... 1
2. No complications ..... 16

It is interesting to note that in these 22 cases, the following bacteria were present in the circulation: hemolytic streptococcus in 17 cases; pneumococcus in 1 case; and in 4 cases no organism was recovered.

In a consideration of the cases on the roof more than five days, there were 16 of the 21 without complications, and they recovered, whereas but 6 of the 14 who showed the various manifestations of pyemia survived.

Thus it seems that when no complications were present the percentage of recovery was greater.

Of the in-door patients there was 100 per cent mortality in the 21 cases that were in the hospital more than five days, while, on the other hand, there were 22 recoveries of the 35 treated on the roof more than five days.

In addition to the one hundred and ten cases here reported, we have treated innumerable cases in the open air where the infection was localized in the pelvis. Among these may be mentioned such cases as pyometritis, parametritis, and the large inflammatory exudates commonly observed in the broad ligaments following labor. These patients seem to withstand high temperatures more readily, and they enjoy and assimilate their food better. Their facial expression changes, after being on the roof for a few days, from one of anxiety and despair to that of hope and assurance. The blood-picture soon shows an increase in hemoglobin and red cells, which, however, coincides to a certain extent with the reduction of the temperature. The most marked effect we have observed, is the tolerance which these patients show for those symptoms that, before, served to depress the organism. I refer in particular to the comparative comfort that is shown even with high temperature.

In these days the tendency of human endeavor lies in the direction of common sense and a more sincere trust in the healing power of the natural forces within the human body. This is especially so in obstetric surgery, for we have demonstrated how much better our patients have done

since we have discarded, not only the intra-uterine douche, but also the vaginal douche, substituting for these the open air and a posture that will insure certain drainage, together with surgical cleanliness.

In infected abdominal wounds, as in transperitoneal and extraperitoneal Cesarean section, the plan which has given the best results is continuous sleeping and living in the open air with the daily exposure of the wound to the direct rays of the sun at all seasons, even in the coldest days of winter.

In all these septic cases, we should keep in mind the principles of infection and immunity. The longer that we can keep these infected cases alive, the greater immunity will they acquire. Until other more specific means are found to treat infection, open air and properly assimilated food is the best method we have of supporting patients until they produce sufficient immune bodies to destroy the overwhelming number of bacteria on the one hand or antitoxin, which will neutralize the toxin produced by these bacteria, on the other.

Another class of cases that is greatly benefited by the open air are those of anemia caused by the oft-repeated hemorrhages from the various pathological conditions of the uterus; also in cases of placenta previa where, in hospital practice only, they may sometimes be carried through a most critical period by keeping them perfectly quiet and entirely in the open air. I have in mind a case which occurred in our service. The patient had had repeated hemorrhages from a central placenta previa. Her blood-picture showed a very grave anemia. On admission she was so nearly exsanguinated that the important indication was to stop the hemorrhage, and try to tide her over until such time as her condition warranted operation. For three weeks a mild iodoform-gauze packing controlled all bleeding. During this time she was kept on the roof, and given the usual tonics and forced feeding, with the result that we were able to rapidly empty the uterus of a full-term child, with no complications, and with an ultimate and comparatively rapid recovery.

At another time a woman was admitted in the seventh month of pregnancy and in a very serious condition, with great emaciation and high fever and chills. Examination revealed a large abscess in the region of the left kidney. Under light anesthesia, this was widely opened, and then for two months she was kept on the roof, result-

ing in deep bronzing of the skin. Her pregnancy was not interrupted; and at term she was delivered of a living child. A few weeks later, when she had sufficiently recovered, the kidney was removed. Ultimately she made an entirely satisfactory recovery, which I consider due to the effects of her continuous stay in the sunshine and open air.

Again, a woman with marked anemia was admitted to the hospital with a diagnosis of placenta previa. On examination here, however, it was observed that the patient was not suffering from placenta previa but had a large fibroid tumor, which was the size and shape of a uterus pregnant seven months. On admission to the hospital she was immediately placed on the roof, with forced feeding, iron and arsenic, and ergot being given to control the flow. At first her progress was extremely slow, but after three months of continuous living in the open she greatly improved, so that, when her hemoglobin had reached 50 per cent, it was decided that a hysterectomy was indicated, and it was accordingly done. Now, some three years since the operation, her blood-picture is normal, and she is perfectly well and able to do her arduous housework.

Many other interesting cases might be cited in which heliotherapy has been used with good results; but the object of this paper is, not so much to relate what has already been done, but to awaken an interest in its more frequent and systematic use in surgery, not in a haphazard way, but with painstaking efforts to develop all that is beneficial. Do not forget that its unrestrained use is harmful, as is shown by the great number of sunburns and insolation cases developed at the bathing beaches. Romer has recently pointed out that the damage may be even more serious; and he has reported two cases in which symptoms of a serous meningitis developed after lying several hours in the sun.

Rollier has blazed the trail in developing a system by his careful method of exposure; and it remains for us to apply some such system to general surgical cases. A literature will gradually develop, and then the subject will be discussed at our society meetings. In this way its use in different localities and climates can be compared, and a comprehensive plan will arise, which will be a valuable addition to the surgery of the world.

## THERAPEUTIC EFFECTS OF RADIUM\*

By D. T. QUIGLEY, M. D.

OMAHA, NEBRASKA

The therapeutic effects of radium, when the agent is used externally, are caused by the penetration of the part treated by the beta and gamma rays. The alpha rays are not used, as the container is always sufficient to screen off the alpha rays. The beta rays may be screened off by heavy metal screens, but the gamma rays penetrate all substances and cannot be screened. The extraordinary effects of radium are undoubtedly due to a combination of beta and gamma rays, and not to gamma rays alone, as was held by several users of radium in Europe a couple of years ago. In using radium much care must be exercised in regard to amount used, screening, length of application, sensitiveness of the part of the body on which it is used, etc., and therefore good results can be expected only after one has mastered the technic, the same as he would be expected to master the technic in any particular surgical procedure. In considering the therapeutic

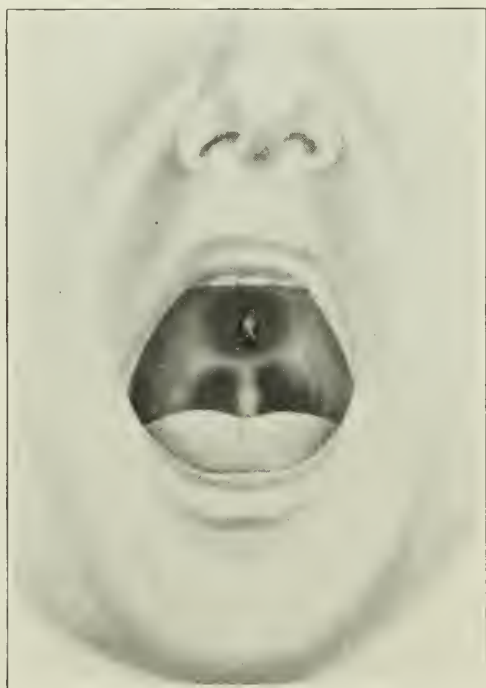
tics of this most potent substance there are four pathological conditions which stand out prominently and in which the action of radium is so revolutionary as to almost merit the term specific. These four conditions are the following: angioma, fibroma, sarcoma, and carcinoma. In angioma of all forms the swelling quickly disappears, and the scar which results is soft, pliable and more nearly like normal tissue than any other kind of scar. I will state in passing that any old, hard contracted scar may have its character entirely changed, may be reduced in size, and may be made soft, pliable, and elastic by the application of radium. In my visit to European clinics and in my own practice I have never seen a case of angioma that has not undergone prompt and satisfactory retrogression under radium treatment.

In fibroma, especially fibroma of the uterus, or myoma, the results have been especially gratifying; and Kelly's and Burnham's reports on these cases are so convincing that in every case where radium is available it ought to be used. It is in

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teresting to note that in the several hundred cases of fibroid treated by Kelly and Burnham with radium no case of malignant disease developed, while in the ordinary group of cases of this kind 2 to 4 per cent of malignant degenerations may be expected. In my own practice radium has replaced the knife in fibroids, and the after-condition of these patients is much better than the after-condition of patients treated by operation. The blood-picture quickly comes up to normal or nearly normal; and the patient, if emaciated, puts on weight, develops a good appetite, and a rosy color.



Glandular type of carcinoma developing from what had been considered a benign tumor, which had existed for nearly twenty years. Complete healing and disappearance of the tumor occurred after one week's treatment of two hours a day with radium.

To illustrate the technic used in treating fibroids I will give the details of one case treated by me in November, 1914.

Woman, aged 40, very thin, very muddy complexion, poor appetite, complained of severe hemorrhages at menstrual period and was forced to go to bed for three or four days at that time on account of loss of blood. She stated that she was afraid she would bleed to death at every period. Some hemorrhages kept up during the whole month.

Physical examination revealed a fibroid the

size of a child's head, attached to the anterior surface of the uterus. Treatment consisted of five applications of a capsule of radium barium sulphate inside of the uterus. The capsule contained 75 milligrams of the salt, 31 milligrams of the radium element. The applications were for twelve hours each, and were a week apart. She has never had any hemorrhage since the first treatment, and at the present time no trace of the tumor mass can be found. She has gained weight, has a good appetite, and is in every way apparently a perfectly well woman.

I have treated several cases of fibroid, and have had the same gratifying results in every case. It will be remembered that Kelly had to operate on less than 2 per cent of his cases.

In sarcoma the malignant cells break down very rapidly under radium treatment; and in these cases it is necessary to be careful not to



Epithelioma of the nose and cheek on a woman 83 years of age. Complete healing followed one week's treatment of two hours a day with radium. Case referred by Dr. A. E. Stuart, Cedar Bluff, Neb.

overtreat the patient; for if the treatment be overdone, the patient is liable to be overwhelmed by the toxic materials thrown into the circulation from the broken-down cells. Dr. Abbe, of New York, considers radium specific in giant-cell sarcoma, and reports several inoperable cases apparently cured which have gone over six years without metastasis or recurrence. From my experience I would say that any sarcoma which has not formed metastasis, and does not exceed four inches in any diameter, and in which radium can be buried, may be successfully treated with radium.

In carcinoma excellent results are being obtained with radium, and in the clinics of Doederlin, of Munich, and of Gauss, of Freiberg, operation in the treatment of cancer has been abandoned in favor of radium. The results are particularly gratifying in cases of cancer of the

uterus, as here it is possible to give massive doses, and, by applying it in the cervix, the ray is from the center.

In this connection I wish to give the history of one case from my own practice. The patient, a girl 23 years of age, was a patient of Dr. W. O. Bridges, of Omaha. She was sent by Dr. Bridges to Dr. Palmer Findley, and as Dr. Findley found by microscopical examination of the scrapings from the cervix a condition of inoperable carcinoma, he referred her to me for radium treatment. She was given three treatments of twenty-four hours each, with 75 milligrams of the radium salt



Medullary carcinoma of the mouth and upper gum, about one and one-half inches long and the thickness of one's little finger. It had been treated with inadequate quantities of radium without result. With the proper quantity of radium the cancer tissue quickly disappeared, and no trace of it now remains. Case referred by Dr. H. B. Hamilton, Omaha.

Recurrence has developed in this case, due to metastasis in the bones of the face.

in the cervix. She received her last treatment on December 24, 1914. In March she returned for examination; and no trace of her former trouble was to be found. To preclude the possibility of recurrence Dr. Findley advised her to have the uterus removed, and she submitted to the operation. A modified Wertheim operation was done, and the uterus was at once sectioned and examined by Dr. Schultz, pathologist of the Medical Department of the University of Nebraska. The cervix was found lined with soft, pliable, elastic scar-tissue, but no trace of cancer tissue was found. The patient recovered nicely from her operation, and is apparently well.

In cancers about the face, lips, eyelids, etc., radium is to be preferred to operation, as it leaves

hardly any scar; and, as no lymph- or blood-vessels are opened, the tendency to metastasis and recurrence is probably less. In ordinary cases of cancer, such as cancer of the breast, etc., I believe the best plan is to operate where operation is possible, and use the radium as an after-treat-



Cancer of eyelid, completely healed by the radium treatment. Case referred by Dr. Harold Gifford, Omaha.

ment to kill out what cells may be missed by the knife and thereby lessen the chances for recurrence.

Dr. Gauss, of Freiburg, reports, in an article in *Strahlentherapie*, abstracted in the January *Surgery, Gynecology, and Obstetrics*, 21 cases of operation for cancer of the uterus where radium was used as a post-operative treatment. Of this



Carcinoma involving the ear. Four operations and treatment with too small a quantity of radium produced no results. When treated with the proper quantity of radium, healing was rapid, and was complete, as shown in the second picture.

Case referred by Dr. J. E. Summers, Omaha.

group of cases 20 have gone six years without recurrence. Of cases operated on, and without the use of radium, 60 per cent of recurrences during the first year is usual. I believe the great future for radium is as a post-operative treatment. The question with relation to radi-

um in cancer is not, Will radium supplant surgery in these cases? but will our surgical results be bettered by using radium in conjunction with surgery?

During the year 1914 reports to both the Schauta and the Wertheim clinics were abstracted in the *Jour. of the A. M. A.* Wertheim reported 18 inoperable cases of uterine cancer treated by radium. Six were apparently cured, and 6 were improved to such an extent that they were later successfully operated on. Schauta reported 22 cases with 11 apparent cures.

It is pretty well agreed among radium users that the dose necessary to kill cancer cells is about one-fifth that necessary to kill a healthy

cell, and that in carcinoma the rays will kill the malignant cell to a distance of 3.5cm. This latter fact is determined by actual experiment. In sarcoma, fibroma and angioma, the action of the radium is manifest at a much greater distance; in other words, these latter conditions are more sensitive to action of the radium rays.

Other conditions in which radium is of use are goiter, in which good results may be expected in about 50 per cent of the cases; keloid; tubercular glands; and essential hemorrhages from the uterus, in which the results are nearly 100 per cent good. Eczemas, pruritus, and many other skin conditions yield to radium treatment; and it is of great benefit in painful conditions, such as sciatica and neuralgia.

## PSYCHOTHERAPY\*

By GUDMUND J. GISLASON, B. A., M. D.  
GRAND FORKS, NORTH DAKOTA

Psychotherapy, or psychic treatment, the application of mental influence in the treatment of disease, has been known and practiced in one form or another from the earliest times of recorded history. It may be said to have been the predecessor of scientific medicine, and that it always was, and still is, its most important adjuvant. Regardless of the fact, however, that psychotherapy in its widest meaning is as old as man, it is only within the last few years that this subject has gained the tremendous popularity it now enjoys. So great and widespread indeed is the interest taken in this subject at the present time that it has become a title of many books and a heading of hosts of articles in the leading magazines. It has crept into the daily press, and become a fashionable topic for after-dinner chats among all classes of society. Many of the less educated marvel at this new discovery, and ask in astonishment how physicians can be so ignorant and unprogressive as not to know or recognize its great importance and power. In the meantime the psychotherapy business is thronged by willing workers of all classes of society, and prompted by all manner of motives. Suggestion is dispensed to "the eternally gullible" in increasing quantities, but for some reason or other nearly always in a foreign garb, and under assumed and high-sounding names, associating it with something, the mysterious power of which is already granted.

"Religion" and "science" are words fraught with great and wonderful significance to all men, but in the mind of the less educated their meaning is especially awe-inspiring and mysterious. It is therefore not surprising that all "cures,"—whether "magic," "Mesmerism," "trac-torism," "spiritism," "holy-grottos," "amulets," "reliques," "patent medicine," "Christian Science," "health food," "Emmanuelism," "new-thoughtism," "electroism," "osteopathy," or "chiropractics," all masquerade as either sacred or scientific, and derive their vitality—their power of suggestion—from this often stolen identity.

As stated above, the recognition of the influence of mind on body in disease is not a new discovery, but was known and applied in a very practical way even by ancient peoples and long before the Christian era. Who has ever seen a more beautiful sanatorium than history leads us to imagine the famous temple of Epidaurus? It was indeed an ideal place for the cure of chronic diseases of many types. It was situated in the midst of beautiful scenery, and surrounded by sheltered walks and shady lanes. Its sleeping-chambers were spacious and airy with their south sides an open colonnade, showing that they appreciated the value of fresh air and out-door life. Its stadium seated 12,000 people where great athletes reminded the patient of health and vigor. Its hippodrome accommodated 5,000, providing horse-racing and other amusing past-times, while its spacious theater, with its seating capacity for over 10,000 and with its lure

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of dramatic art, invited him to its performances and representations of the great classic plays; and along with all this was present the powerful influence of religion. Nor was this system confined to Greece alone. Egypt also had arrangements for treating patients in a similar way. Pinel says that "they provided a system of diversified amusement, sanctioned and enhanced by superstition. All was calculated to suspend the influence of pain, to calm the inquietudes of a morbid mind, and to operate salutary changes in the various functions of the system."

Plato's criticism of the medical profession of his day is expressed in one of his Dialogues where Socrates says, "So neither ought you to attempt to cure the body without the soul, and this is the reason why the cure of many diseases is unknown to the physicians of Hellas, because they are ignorant of the whole, which ought to be studied also, for the part can never be well unless the whole is well . . . And, therefore, if the head and body are to be well, you must begin by curing the soul—that is the first thing. And the cure, my dear youth, has to be effected by the use of certain charms, and these charms are fair words; and by them temperance is implanted in the soul, and where temperance is there health is speedily imparted, not only to the head, but to the whole body. For this," he said, "is the great error of our day in the treatment of the human body, that physicians separate the soul from the body." (Dialogues of Plato, trans. by Jowett, edit. of Scribners, 1911, p. 10.)

The philosophers began early to criticize the medical profession for not treating the mind as well as the body, and they have kept it up ever since, and not without reason. But even the physicians of those days were not entirely ignorant of the power of suggestion.

Hippocrates, the father of medicine, recognized the fact that he doth the best cures in whom most trust. (Burton.)

Galen, perhaps the greatest of ancient physicians and one exerting a powerful and lasting influence on his profession, was of the opinion that faith in the physician was in some cases essential, and cure could not be accomplished without it. He observed that different remedies healed the same disease, and inferred that the patient's mind had some influence in the matter.

Paracelsus said, "Imagination and faith can cure and remove diseases, faith produces mir-

acles, and, whether the object of your faith be real or false, you will nevertheless obtain the same effect."

So one might keep on quoting medical authorities in all ages to prove that psychotherapy has always been practiced by physicians, although its value has not been fully appreciated, and other things often have been given credit for the results obtained.

Thus Valentine Greatrakes (1628-66), who dreamed that he was divinely commissioned to touch and cure people and who from his strokings and assurance to his patients that they would become well, achieved a great reputation among both high and low of his day, believed himself to be a possessor of supernatural power, while Henry Stubble, physician at Stratford upon Avon, in the light of the medical knowledge of the seventeenth century, offers as explanation of these cures the theory that "God has bestowed upon Mr. Greatrakes a peculiar temperament, or composed his body of some particular ferments, the effluvia whereof, being introduced sometimes by a light, sometimes by a violent friction, should restore the temperament of the debilitated parts, re-invigorate the blood, and dissipate all heterogeneous ferments out of the bodies of the diseased, by the eyes, nose, mouth, hands and feet."

Effluvia, then, was the learned explanation of the wonderful effects produced by the healing methods of this Greatrakes, who, by the way, should be granted the doubtful honor of being the father of modern Osteopathy, Chiropractic, and other "Strokopathies."

Johann Joseph Gassner, a Suabian priest, became known as a curer of disease about 1773, and was one example of many similar products of the eighteenth century. He regarded diseases of Satanic or evil origin and attempted to drive them out by divine agencies. He inquired regarding the nature of the patient's complaint and its symptoms, and, after urging him to have faith, offered his prayers and repeated his stock formulas until all was well. Thus it was "the divine agency" theory upon which Gassner explained his successes.

Dr. Franz Anton Mesmer (1734-1815) graduated in medicine from the University of Vienna, 1776, and is popularly, but erroneously, considered by some to have been the discoverer of Hypnotism. Athanasius Kircher experimented with it and wrote about it more than a century before. Mesmer is one of the conspicuous figures in the history of psychotherapy.

Mesmerism, which was hypnotism together with the use of magnets, the baquet, fantastic dress, and equally fantastic manipulations to aid him in healing the sick, had its period of triumph, and made Mesmer himself for a time the pride of Paris and known all over the world even to this day. He worked with hypnotic suggestions, but, ignorant of this fact, he credited all his strange results and successes to the mysterious something which he called "animal magnetism."

Puysegur, a pupil of Mesmer, who at first followed his teacher's practices to the letter and believed religiously in his animal-magnetism theory, later came to the conclusion that it was the action of his will upon the somnambule that effected the cure, while his contemporary and fellow-practitioner in this field, Dr. Petetin of Lyons, credited all to "animal electricity," and wrote volumes on the subject.

It was left to an English surgeon, John Braid, about the middle of the last century to fully recognize suggestion as the power that brought about the hypnotic phenomena and that worked the miraculous cures. But even though the power of the mind over matter now became gradually recognized in the case of hypnotism, the regular physicians of the period still kept on attributing all recoveries to the physical effects of their shot-gun prescriptions, which required more knowledge to compound than to write, and more heroism to take than to die; while Hahnemann (1755-1843), the founder of Homeopathy, and his followers almost won the day by giving such small and highly diluted doses that it would have taken more than a lifetime to consume one drop of the tincture of belladonna, bryonia, or any of the rest of the drugs sanctioned by their pharmacopeia.

Hahnemann's success will be appreciated especially by the financiers within our profession when they recall that at the time of his death in Paris he had reached the lofty height of being classed a millionaire. These good results were emphatically credited to the three great fundamental theories of his system: first, that like cures like, which was a revival of the Paracelsian doctrine of signatures; second, that infinitesimally small doses as obtained by his dilutions or trituration increased the dynamic effect of drugs; and, third, that most chronic diseases are only a manifestation of suppressed itch or "psora."

The latter half of the nineteenth century witnessed the remarkable development of physics, chemistry, and biology, and thus brought along

with it the wonderful achievements of modern medicine, as well as incomparable progress in engineering invention and a host of other human activities along material lines. This was a period of a realistic wave greater and far more important than had ever been witnessed before, and during its flow, the idealistic was almost lost sight of; but during the last quarter of a century this wave has gradually been sinking, and, true to the course of human civilization, another wave of idealism is slowly rising in its path.

The world is tired of studying and explaining matter and its laws, and is eagerly turning to idealistic philosophy for its interpretation,—the meaning and object of it all. It is natural, therefore, that during this period of unrest men should be ready to magnify the importance of mental influence as a curative agent, and to be even led astray by the wildest fancies and most senseless theories as long as their aim seems to harmonize with the prevailing tendencies of thought.

The best example of this, is the wholesale acceptance of such systems as the teaching of Eddyism, or Christian Science. This healing cult, the offspring of one P. P. Quimby and the much-known Mrs. Mary Baker Glover Eddy, was not only launched at a psychological moment, but, through its self-exalting misnomer, as well as its assertions, claimed relationship both with Christianity and Science, to either one of which it does not seem to bear any resemblance. If there is anything interesting about Eddyism, it is its supreme contempt for facts and logical thinking, its reckless and extravagant denials, and its preposterous egotism. It denies the existence of a material body, the existence of disease, the potency of poisons, the necessity of food, and the value of hygiene. It repudiates anatomy, physiology, treatises on health, and most things that sane men call science; and, while savored with a theological flavor, it disregards every form of Christianity, and asserts in the words of its founder: "I am never mistaken in my scientific diagnosis"; "Outside of Christian Science all is vague and hypothetical, the opposite of truth"; "Outside of Christian Science all is error."

The Emmanuel movement is another outgrowth of present conditions that has acquired a great notoriety and a goodly number of adherents. It emphatically resents any allusion of resemblance to Christian Science, and cannot be truthfully charged with any such kinship.

This movement had a splendid origin in a truly philanthropic attempt to treat indigent consumptives in Boston at their homes, under the superintendency of the physician, Dr. Joseph H. Pratt, and with the assistance of the clergy to add "discipline, friendship, encouragement, and hope." This noble effort naturally met with a good deal of success, and from this Rev. Emmanuel Worcester, D. D., Ph. D., rector of Emmanuel Protestant Church of Boston, Mass., a clergyman of high standing and formerly a professor of psychology in Lehigh University, conceived the idea to begin a similar mission among the nervously and morally diseased. The undertaking was launched in 1908, and the Emmanuel Church started free clinics for the psychic treatment of functional nervous disorders of many types. Its plan was, and, as far as I know, still is, to co-operate with the science of medicine and, according to its rules, "no person shall be received for treatment unless with approval of, and having been thoroughly examined by, his family physician, whose report of the examination shall be filed with the church clinic records"; "all patients who are not under the care of a physician must choose one, and put themselves in his care before they can receive treatment at Emmanuel Church."

In spite of all this, however, Emmanuelism has never met much favor with the medical profession. The distinguished neurologist, Dr. James J. Putman, who presided at its preliminary meeting and delivered the first address, found himself called upon two years later to withdraw his approbation through the columns of "The Boston Herald."

Dr. Worcester and his assistants have undeniably accomplished a great deal of good; but, strange to say, this movement can hardly be said to have ever moved from its birthplace, nor is it likely that it ever will.

If the philosopher is right in stating that the "error of the physicians is that they separated the soul from the body," surely the psychologists and theologians are as much in error when, in the treatment of human ills, even of nervous origin, they attempt to separate the body from the soul.

The acceptance of psychotherapy as an established therapeutic procedure in medicine may be said to date from the scientific study carried on by Charcot and his pupils of the "Paris School," and also by Bernheim and Liebault of the "Nancy School" in the scientific application of hypnotism and the long and somewhat bitter controversy between these schools over the subject,

especially the part played by hypnotic suggestion and the value of hypnotism as a therapeutic agent. While psychologists seem to favor the "suggestionist" teachings of the "Nancy School," the medical profession leans towards the teachings of Charcot in so far as the value of mental and moral suasion *vs.* hypnotism is concerned, as a therapeutic measure.

On the other hand, Charcot's disregard of the sexual nature of hysteria, has since been refuted by the investigations of Janet and his own pupil Sigmund Freud, professor of neurology at the University of Vienna. Dr. Freud's scientific study of psychopathology, or the "mind diseased," and his conclusions as set forth in his writings on theories of neurosis, the interpretation of dreams, the sexual theories, the psychopathology of everyday life, his book on wit, and his elaborate system of psychoanalysis, have easily won him the distinction of being at present the world's greatest psychotherapist. Psychoanalysis has been successfully practiced in America by neurologists of high repute, such as J. J. Putman, of Boston, A. A. Brill, of New York, and others, and may now be said to have gained a firm footing in this country as a psychotherapeutic measure.

A scientific knowledge of the relation of mind and body or the body's reaction to mental influence is the foundation upon which rational psychotherapy must rest, and the degree of that knowledge will be to a great extent the measure of its efficiency as a therapeutic agent. Many have sought to further our information on this subject, but no one more successfully than the eminent surgeon, author, and investigator, Dr. George W. Crile, of Cleveland, Ohio, through his highly original researches on surgical shock and the physical effect of intense and prolonged emotions.

While experience has shown that psychotherapy is most useful in the field of functional nervous diseases and in the early stages of mental disorders, and that especially in case of psychoanalysis and hypnotism it reaches its highest point of efficiency only in the hands of competent neurologists, especially trained in these forms of treatment, yet no physician can afford to be indifferent to its advantages or not to benefit by its important message. Psychoanalysis and, in some cases, hypnotism, while therapeutic methods of great value, are not essential to the successful employment of psychotherapy by the general practitioner, and those practicing specialties other than neurology and psychiatry. The object and goal of psychotherapy must al-



ways be the re-education of the patient, the uprooting of false notions, and the re-establishing of sane and healthy habits of thought. It presupposes, as absolute essentials on the part of the physician, a noble character, absolute sincerity, a broad and sympathetic mind, firmness, truthfulness, tact, and diagnostic ability of the highest order.

The greatest usefulness of psychotherapy, however, lies in its value as prophylaxis. It is idle to deny that there is as urgent a need for mental hygiene as there is for the physical; and it is one of the hopeful signs of the times that such organizations as the "Social Service Department" and the "National Society for Mental Hygiene" have made it their object to assist in disseminating education on that subject.

What diseases, then, can be benefited by psychotherapy? It is a psychotherapeutic measure to inspire hope, confidence, and optimism, and surely that will benefit every disease under the sun. Under the influence of this trio, patients suffering from incurable cancers have left their sick-beds, and remained useful citizens for many months; and consumptives have gained in weight, vigor, and health. Diseases of the heart, dyspepsia, jaundice, chlorosis, and Graves' Disease—all have been materially benefited by this mode of treatment, and is it not natural that it should be so? Mental impressions or emotions alone can make one as red as a beet or as pale as marble; can make one sweat or shiver; can produce emesis, catharsis, or constipation, and cause anuria or polyuria as often happens in hysteria. It can bring about indigestion, make the heart intermittent, the muscles powerless or rigid, and the skin anesthetic or hyperesthetic. It can lessen or increase the secretions of the salivary glands, the gastric and intestinal glands, the suprarenals and thyroid, and, in short, can influence every function of the body.

There still remains another question: What diseases can be cured by psychotherapy? I think in answering that question we can safely fall back on Hahnemann's dictum, "*similia similibus curantur*," and say that all those diseases which are caused by suggestion can be cured by suggestion. This includes, not only functional disorders that supposedly have no organic cause, but also the manifestations of disease which, when really present, are always of an organic nature. Take, for example, the prevalence of catarrhal symptoms at the time when catarrhal advertisements covered whole pages of the daily press; of sexual disability when lost-manhood literature went broadcast over the land; the num-

ber of people complaining of the symptoms of cancer or tuberculosis because similar diseases have taken away a relative or friend, and this has suggested the likelihood of similar diseases in themselves; or, perhaps, better still, our present-day epidemics of appendicitis symptoms. This is especially noticeable when we observe that in some localities this dreaded malady still remains a comparatively obscure and rare disease, while in other sections it becomes more common than toothache or a bunion. I have good authority for the statement that in one locality at least fifty per cent of the inhabitants, old and young, have been operated on for appendicitis. But this is a sore spot with some of our surgeons, and I do not want to tread on their corns; and yet one cannot but think that some of these cases would be more properly treated by psychotherapy.

Morbid suggestions of disease are no doubt most commonly received from the untutored observation of the diseases themselves, knowledge of existence of a dreaded disease in the family, and all sorts of verbal suggestions from newspapers and associates.

There still, however, remains a source which is most of all to be regretted because it lies within our own profession. Thank Heaven, we have passed the day of floating kidneys, which no longer sail around as they used to; neither are there so many crooked wombs that need straightening, nor offending ovaries that must be extirpated. This is a natural evolution, and marks the onward march of our science to a greater perfection.

But other things still persist, though in isolated cases, that should long ago have become relics of the past; and those are such irresponsible statements as "your lungs are not as strong as they ought to be" or "your heart is a little weak," made for no other reason than to impress the patient that he has come to a physician who knows his business, and can detect even the smallest errors. Then there are those cloudy and uncertain statements that the patient so often misconstrues to his own disadvantage, and again the ominous silence, which is so readily interpreted as the equivalent of a death sentence. All these things will unintentionally sow the seed of fear, which is the most efficient destroyer of vitality and accomplice of disease.

Suggestion diseases of whatever nature can be neutralized by healthy mental influence and re-education, and thus can not only be prevented but can be cured by proper appreciation and application of psychotherapy.

## TWO HUNDRED LUNG CASES: SOME CONJECTURES AND CONCLUSIONS\*

By J. G. LAMONT, M. D.

Superintendent of the North Dakota State Tuberculosis Sanatorium  
DUNSEITH, NORTH DAKOTA

It is a generally accepted modern opinion that in the human race tuberculosis infection is almost universal. The fact that the von Pirquet and other tuberculin tests are so frequently positive after the second year of life as to render the reaction practically useless for diagnosis of active cases, supports this theory. Through infection in childhood, a condition of blood and tissue is produced which protects, more or less, the organism from further invasion, and at the same time renders the tissues sensitive to the bacterial product, tuberculin. (Seibert, *Deutsche med. Wochens.*, March 12, 1914.) This condition of tuberculosis allergy is variable in the individual, both as to degree and duration. As in many other infective processes, a sublethal dose of the poisonous germs is successfully combated by the organism; and in the struggle the organism becomes fortified, to a greater or less extent, against a larger dosage. It is possible that many individuals are for all time thus rendered immune against reinfection. In a certain percentage, however, the early infection is the opening chapter of a tragic story whose end is adult phthisis. (Burnet, *Presse med.*, April 19, 1914.) Owing to an unstable condition of allergy the individual is insufficiently protected against a reinfection. The severity of the reinfection both as to virulence and quantity of dosage is variable, as is also the degree of individual resistance. Thus step by step is developed that peculiar type of individual lung which we recognize as belonging to the actively tubercular patient.

In every reinfected lung the process of natural repair is more or less complete. Healed cavities, areas of scar-tissue, fibroid changes, patches of thickened pleura, and walled-in and caseating masses of consolidation evidence the fact that even in those individuals where the resistance is below normal, nature makes a heroic effort to repair the injury. From childhood up, the proportion of acute types becomes smaller and smaller.

Each effort, however, to dislodge the entrenched invader calls upon the reserve of vital force. Mixed infections are the rule, and pro-

duce symptoms complex. Thus in the average actively tubercular patient, and, we believe, even in the so-called incipient, we no longer are dealing with the tubercle bacillus alone. Various strains of pus organisms,—pneumococci, influenza, and catarrhal organisms,—find entrance to lung areas, which in normal health we are sufficiently able to withstand. It is believed by many observers that the so-called secondary organisms are frequently the primary infection, and pave the way for the tubercle bacillus. How frequently it happens that the influenza infection in January merges into pneumonia in February, and the tubercular consolidation during March or April!

It has also been noticed that the action of the tubercle bacillus becomes much more virulent in the presence of other organisms. Tubercle bacilli, which are hard to cultivate alone, have been grown readily in nutrient solutions which support colonies of pus organisms.

Is it not probable that within the human lung similar processes may prevail, and that tubercle bacilli find more suitable soil in tissue-cells which have been prepared by the action of ferments set free by pus or other organisms? The writer has in mind a case recently treated, in which a careful sputum analysis, repeated several times, failed to demonstrate the presence of the tubercle bacillus. There were, however, many streptococci. Is this a primary or secondary infection? With the absence of tubercle bacilli the indication for treatment would be autogenous vaccine.

In presenting to this Association a condensed report of the earlier cases institutionally treated in our own state, I do not feel that it should be regarded as the result-summary of an experiment. As a matter of fact, is it not perfectly true that the essentials of proper treatment are to be found (1) in segregation for purposes of hygiene; (2) in the proper administration of open air, whether warm or cold, in sunshine, and in due control of rest and exercise, with as liberal and varied a diet as the patient can assimilate?

The end-results in a certain number of cases will therefore depend largely upon the type of patients received and treated. How many pa-

\*Read at the 34th annual meeting of the North Dakota State Medical Association at Bismarck, N. D., May 12 and 13, 1915.

tients before undertaking any form of treatment have acquired a condition of lung which renders the future, with its gradual abandonment of each stronghold of vitality, an unavoidable failure!

The moving finger writes; and having writ  
Moves on. Nor all your piety nor wit  
Shall lure it back to cancel half a line.

After the earlier stages of lung invasion have occurred, in many cases is it not true that, in the nature of things, invalidism or death must be the result in a considerable proportion? At what particular time a tuberculous patient crosses the hope-line, is a question of the individual equation. Unfortunately, the family physician is frequently not consulted until the moderately advanced stage is reached. As a rule, we may assure practically every incipient that with proper treatment he will get well; a small proportion of the moderately advanced eventually become cures; a larger number tire of the treatment and give up, or drift later into a semi-invalidism, fit subjects only for institutional care. If allowed to return to community life the last-named class continue as germ-distributors until finally carried away by the accident of hemorrhage or some form of acute general infection. After a certain area of lung has been impaired in function, the patient is rendered unfit for the burden of self-sustenance. By far the greater proportion received in general institutions are of the advanced type, with multiple infections. Such are no longer tubercular, merely, the sputum containing usually influenza, pneumococci, or some variety of pus organisms, in addition to the bacillus of Koch, each form of germ life acting more virulently upon tissues already denuded of all defensive ferments and protective substances.

This report covers 166 cases discharged, and 47 in residence on May 1, 1915; total, 213.

Of the 166 cases discharged, the following notes taken from the records may be of interest:

1. Involvement of the right lung only....	18
2. Involvement of the left lung only....	13
3. Involvement of both lungs.....	129
4. Purely glandular .....	2
5. Non-tubercular .....	4
Total .....	166

Sex:

Male .....	78
Female .....	88
Total .....	166

Age:

Under 10 years .....	4
From 10-20 years .....	21
From 20-30 years .....	69
From 30-40 years .....	55
From 40 years and over.....	17
Total .....	166

Family history:

Positive .....	101
Negative .....	65
Total .....	166

History of direct exposure.....	79
No knowledge of exposure.....	87
Total .....	166

Lactation and childbirth is stated as predisposing cause in 26 out of 88 females.

The cases when received were classified as follows:

1. Incipient .....	32
2. Moderately advanced .....	60
3. Far advanced .....	43
4. Hopeless and incurable.....	19
5. Came for consultation.....	12
Total .....	166

Classifications on discharge:

1. Died .....	21
2. Unimproved .....	35
3. Improved .....	55
4. Quiescent, arrested and apparently arrested .....	29
5. Not treated or remained less than two weeks .....	26
Total .....	166

Of the 32 cases received as incipient, the following classification is made on discharge:

1. Not treated .....	2
2. Apparently arrested .....	22
3. Improved .....	7
4. Died of hemorrhage.....	1
Total .....	32

Of the 60 cases received as moderately advanced, a smaller percentage were classed on discharge as apparently arrested, and more in the improved class.



Complications were present as follows:

Tubercular laryngitis .....	30
Albuminuria .....	20
Superficial glands involved.....	35
Hemoptysis .....	16
Night sweats .....	77
Stomach and bowel trouble.....	91
Cavities .....	58
Glycosuria .....	2
Empyema .....	4
Pleurisy with effusion.....	3
Spinal caries .....	2
Hip-joint (tubercular) .....	1
Organic heart-lesion .....	1
Tubercular knee-joint .....	1
Chronic pharyngitis .....	1
Tubercular meningitis .....	3

The gastro-intestinal troubles included errors of digestion, toxic enteritis, and tuberculous ulceration.

Time of residence:

Came for consultation.....	12
Under 1 month .....	35
Under 2 months .....	21
Under 3 months .....	28
Under 4 months .....	27
Under 5 months .....	9
Under 6 months .....	14
From 6 to 9 months.....	8
From 9 to 12 months.....	3
From 12 to 18 months.....	5
Over 18 months.....	4
Total .....	166

Gain in weight is reported in 64 cases, classified as improved on discharge, the average gain in these being 10.53 pounds.

Patients were classified as discharged improved with the following symptoms:

Lessened or no expectoration.....	51
Tubercle bacilli absent.....	46
Improved appetite and digestion.....	60
Entire absence of râles.....	20
Highest gain in weight recorded.....	44 lb.

Tuberculin:

Some form of tuberculin was administered at regular intervals in gradually increasing dose to cases where not contra-indicated by elevated temperature or other conditions of oversensitization.

Of the cases in residence May 1, 1915, the following facts are interesting:

Bed patients .....	16
Ambulatory .....	31
Total .....	47
Improving .....	31
Not improving .....	16
Total .....	47

Time of residence:

Over 18 months .....	5
Over 1 year .....	5
Over 9 months .....	7
Over 6 months .....	3
Over 3 months .....	4
Over 1 month .....	14
Under 1 month .....	9
Total .....	47

Sputum examination:

T. B. negative .....	10
T. B. positive .....	37
Total .....	47

Urochromogen test:

Positive .....	14
Negative .....	33
Total .....	47

The urochromogen test of Weisz, viz., permanganate 1-1,000 is being used as a routine means of determining prognosis. It is active in the majority of bed-patients.

Taking tuberculin .....	19
On exercise .....	16
Complete immobilization .....	15
Partial immobilization.....	16
Considered hopeless .....	9
Considered doubtful .....	13
Considered hopeful .....	25
Total .....	47

The average family physician is frequently blamed by the patient for failure to make an early diagnosis. In the main this criticism is harshly unjust. There is no country doctor who has not formed by constant repetition the composite mental picture of the patient who is developing or may develop into the actively tuber-

cular. His knowledge of the family history, the hygienic influences, the habits, daily life, and even the mental processes of each individual, renders him especially fitted for this important and sacred duty to patient, to the family, and to the community. In a goodly proportion of cases the early symptoms of anorexia, malaise, and loss of weight belonging to the incipient stage, pass rapidly to the cough, expectoration, and elevated temperature belonging mostly to the moderately advanced condition, before the doctor is consulted. If the patient is advised in the stage of incipency, it too often happens that home cares and duties result in continued overwork until irreparable injury results.

In due time with the establishment of a suitable dispensary system and the employment of the school nurse, together with the all-time health officer, many of these errors will be avoided. Under present conditions, the family physician must bear the burden, whether he will or not. A plea for early diagnosis, however, in tuberculosis is a plea for human life. In no disease is careful treatment in the earliest incipency more important. A study of the many advanced cases sent to hospitals for treatment will readily demonstrate that a week's delay at home without treatment often means a month's extra treatment, or perhaps final failure. The invasion of a lobe of lung may occur as a result of one day's extra house-work. Nature warns when the appetite fails and a feeling of exhaustion comes after slight exertion. Frequently, cough, expectoration, and elevated temperature are symptoms belonging only to the moderately advanced stage. In any case with a history of overstrain, as from lactation, with a feeling of malaise, anorexia, aching through either shoulder-blade, rapid pulse (from 80 to 90), a tendency to perspiration, be suspicious of reinfection. A plea for early diagnosis is also a plea for care in examination. Take time to consider. Examine each portion of the lung separately and thoroughly. Appoint a special hour for this duty, and then make another appointment and re-examine. Do not depend upon a single temperature record. Insist on rectal temperature every three or four hours with a written record of the same. In all cases of doubt, reserve your opinion for a time, and keep your patient under observation.

In consideration of the fact that the hypodermic use of tuberculin in considerable dosage for purpose of diagnosis, is unsafe, and that the cutaneous tests are confusing, the physician is

forced to depend upon his own good judgment as based upon a study of the clinical symptoms.

It is worthy of note that expectoration, with tubercle bacilli positive, and evening temperature, together with rapid emaciation, are signs which often do not appear until a chest-examination reveals a one-or-two lobe lesion. The family physician who is thoroughly conscious of danger will readily suspect early signs. The rapid pulse, anorexia, variable appetite, gradual loss of weight, and sometimes irregular pupils will lead to suspicion and investigation. A careful examination of such a chest will usually reveal fine râles on inspiration after a slight cough following expiration. Where these are not found, a small dose of potassium iodide given overnight will aid in localizing the difficulty. In examining a series of cases one is often surprised to find extensive râle areas, with very little expectoration and few constitutional symptoms, also with the temperature running a sub-normal course throughout the day.

The fact that the majority of cases sent to the state institution are of the advanced type, argues a deficient and inadequate local machinery of public health as applied to counties and townships. If tuberculosis is readily curable in the earlier stages of reinfection, it becomes a matter of community duty to supply the means for diagnosis and treatment during these stages. Since public institutions can take care of only a small proportion of the thousands in each state, the great majority must be treated by the family physician or under the supervision of the visiting nurse.

The actively tubercular subject does not live unto himself alone, but, from the moment when he becomes a germ-carrier, he acquires a community interest as a source of dangerous infection. The state-wide control of disease can never become effectual, except through a smoothly acting and efficient local organization that will reach the individual in his own household and forcefully impress the importance of implicit obedience to the laws of hygiene.

#### DISCUSSION

DR. JAMES GRASSICK (Grand Forks): I am sure we are to be congratulated upon having such a paper on tuberculosis as has been presented this morning. In my opinion, it is one of the best papers on tuberculosis we have had read before this Association since I have been connected with it. What appeals to me is that the subject has been treated in a live manner, and brought right down to actual conditions as they exist in our own state, and as they

affect our own people,—in other words, it has been brought home to us.

In our study of tuberculosis we are pretty well agreed on certain cardinal principles, and I do not know that I can add very much to what has been said by the essayist, other than to emphasize some of the points he has made. If we are to control tuberculosis, we must be able to cure those that are affected and to prevent the infection in others. Everyone sometime has been more or less infected with tuberculosis. When we consider that there are so many walking cases, carriers of the disease, going about, promiscuously expectorating and otherwise spreading the germs, it could hardly be otherwise. The life forces of the body are sufficient to check any ordinary infection of the disease, and the modern methods of control are based on the principle that we have to assist and fortify these, and by so doing we are able to cure a great many of the cases if we can get them in time. If we get the patient in the early stages of the disease the chances are we will have a recovery. But the early diagnosis is essential, in order that we may begin to get the life forces built up in the individual before the germs and their products have made such ravages on the constitution as to defy our efforts. To achieve this we must educate the masses as to the importance of early recognition. I have found a great many times when a patient comes into the office, and I make a diagnosis of tuberculosis he holds up his hands in horror, and says, "Why, doctor, there has never been a case of consumption in our family. How could I have it?"

The point we want to emphasize is, it is not necessary to have a case of tuberculosis in the family. The old hereditary idea has taken such hold of the people that they think if there has been no case in the family, it is impossible for them to have it; consequently, they will pass up the ordinary symptoms, and defer a visit to a physician for diagnosis, and thus lessen their chances for recovery.

Another point hangs right on this as a corollary, that is, the responsibility of physicians in making early diagnosis. When we think that in the incipient cases nearly everyone can be cured, that in the moderately advanced cases only about half can be cured, and that in advanced cases practically none, we can see the importance of this. I believe with the essayist, that a great many of the cases are not diagnosed early enough, but North Dakota is not alone in this respect. Barnes, writing in the *Journal of the American Medical Association* of the conditions in Rhode Island, finds forty-six per cent of the tuberculosis patients have been incorrectly diagnosed. Stoll, writing on the conditions in Connecticut, says forty-four per cent have been incorrectly diagnosed. Detroit, in the *Wisconsin Medical Journal*, says the conditions in Wisconsin show forty-two per cent have been incorrectly diagnosed, and Hawkes, in the *Boston Medical and Surgical Journal*, on the conditions in Massachusetts, makes the statement that fifty-seven per cent have been incorrectly diagnosed. Consequently our state, as shown by conditions which have been tabulated and narrated by our essayist, is in line with the general conditions as they exist in other parts of our country. These facts should stimulate us to redouble our efforts for an early recognition of the

disease in those coming to us for examination. The family physician gets very close to the people, and on him devolves the duty of warning them of approaching danger. He has opportunities for speaking a word in season that may direct them along the lines of right living and that may impress upon them the necessity of seeking help when any of the well-known and easily recognized symptoms point to a possible tuberculosis infection.

DR. R. H. RAY (Garrison): I would like to have Dr. Lamont, when he closes, state whether toxic goiters make tuberculosis conditions worse, and whether he has noticed them present in those cases to any extent.

DR. G. H. SPIELMAN (Flasher): I would like to ask if, after a person has had incipient tuberculosis, and has been cured, there is any tendency of the patient becoming immune to a certain extent from re-infection.

MISS SMITH (newspaper reporter): I would like to ask in regard to the weight of ten pounds gained, in what period of time was the ten pounds gained?

DR. GILLAM: I would like to know if there is any such thing as a real cure for tuberculosis.

DR. DEMING: I would just like to emphasize one statement the doctor made, namely, that in a great many people after death tuberculosis of the lungs has been found. I have had the opportunity of making quite a number of post-mortems, and I venture to say seventy-five per cent have been affected. I would like also to have the doctor explain the dividing line between a cure and an arrested case, when a patient has been discharged as cured, how do you know he is not affected by the original infection? In other words, once infected, is one ever cured or is the disease simply arrested?

DR. H. O. ALTNOW (Mandan): I would like to have a little information on the interpretation of the tuberculin test. I may have come in after that part of the paper was gone over, not having heard all of the paper. There is one question I would like to have answered, and that is this, whether cases which show these incipient signs of tuberculosis, or suspicious signs, if they are given one to five milligrams of tuberculin, and the test is negative, with no rise of temperature and no focal or constitutional signs, whether that is any assurance at all that there is not active tuberculosis there. I do not mean latent, I mean active tuberculosis.

DR. R. H. BEEK (Lakota): I was talking with Dr. Lamont last evening on the conditions that we sometimes see, and I have wondered if I was so far off in my interpretation of the apparent symptoms that I did not know what I was doing. In two or three instances it has come under my notice that a young man was taken ill, not suddenly, not seriously, but with a temperature for a little time, and he would probably have a little cough, with no particular thing the matter with him, and because of this we were induced to make an examination of the lungs, and on examination of the lungs there was evidence of disturbances there, so much so that we looked upon the case as probably the beginning of a tuberculous



condition, and while we do not make positive diagnoses of these cases, and we are not permitted to use diagnostic tuberculin, we thought possibly we had a beginning of tuberculosis. However, in the course of about three weeks our ideas were subjected to a very radical change, because, after rest in bed, and little particular specific medication, simply of a tonic nature, and ordinary care, such as would be furnished in the ordinary home, that patient got along all right, the temperature at no time ran high, the pulse a little fast, but there was a gradual cessation of the symptoms, and the patient went on to complete recovery. We could discover nothing else wrong, except possibly a tuberculous infection. Now, was there a tuberculous infection? Of course, I cannot say that there was, and I would not in that particular case. It seems to me under conditions of that sort I would be inclined to withhold the opinion, and in six months, perhaps not until eighteen months, can a definite diagnosis be made in the case, because it seems to me, unless I am very radically wrong, that there must be something there in the lungs that caused the trouble. There was absolutely no other symptom this young man had, there was trouble there, and it cleared up. In talking with Dr. Lamont last evening I was glad to know he was of the same opinion as myself, that there was reason to suspect tubercular infection, despite the fact there had been an entire clearing up of the symptoms, and it was well enough to withhold a positive diagnosis. Those are things that let you down pretty hard, because you feel pretty sure of your ground, and when in two or three weeks you see your patient clear up entirely, it causes you to wonder, and I have come to the conclusion that it would be well enough to have an opportunity to go over the conditions a few months afterward.

DR. L. D. BRISTOL (Grand Forks): I would like to ask Dr. Lamont for my own information on the subject, inasmuch as I am a newcomer to the state, what the conditions are in regard to free dispensary work in North Dakota? Statistics show that the city boy and girl at the present time have better chances, so far as health is concerned, than the country boy and girl. I believe this may be explained very largely on the ground that in the city free dispensaries for the diagnosis of such diseases as tuberculosis are available. I had the privilege of being in charge of the tuberculosis dispensary in St. Paul for some time, and I thoroughly appreciate the great value of dispensary work in the early diagnosis and treatment of tuberculosis, and I should like to see a great advance along such lines in this state.

DR. E. A. PRAY (Valley City): An article in the last issue of *The American Medical Journal* touched a responsive cord in me because his article was on tubercular lung lesions, especially applying to abscesses of the lungs. I say this especially interested me because my own boy a year ago in February, aged fourteen, developed a condition suddenly, had no warning at any rate, in which he coughed up a lung abscess, and so far as we knew he had not been feeling badly more than one week. The quantity of discharge was about a pint of pus and blood. The microscopical examination was never proven. In about six weeks before that he had an attack of illness. I put him to bed and took care of him, and he got up apparently

well, and up until one week before the evacuation of this pus he felt perfectly well. I had him looked over by a number of internists, and a physical examination was practically without result. The x-ray apparently showed some trouble with one of the bronchi, the main bronchus on that side, and the temperature developing at that time ran over fifteen days. Since that date he has not had any increase of temperature. He weighed 180 pounds, and he now weighs 220 pounds. The boy is gaining, and apparently gained continually during the past summer. A year ago I sent him up in the pine woods to get away from the dust, and this question of dust I believe to be the great thing in the treatment of these cases. I do not wish to keep one of these patients in the city if I can get him out in the country and away from the dust. I think we should consider that more. The small town does not provide the facilities for getting well that the country does. We all know the amount of dust that arises in a town, and in some places probably more than in the city where the streets are sprinkled.

I believe the boy is on the road to recovery. We have never found anything in the nature of tubercle bacilli, but I believe he did show a very slight reaction. The x-ray was questionable. That was after the evacuation of the abscess.

DR. V. H. STICKNEY (Dickinson): I would like to ask Dr. Lamont if, during his work in the state, he has noticed an improvement in the condition of affairs concerning the early diagnosis,—whether the educational propaganda which has been carried on has been in any way effectual. I think it is a matter of fact that an early diagnosis in cases, especially the incipient cases, is rare largely from the fact that the cases do not appear to the physician until after the stage of incipency is past, and the disease has become more or less progressive. The question is, whether the educational work that has been carried on has given patients an understanding so that they make their appearances early for an examination. In the cases that have come to me where there was no indication of tuberculosis other than that of a general weakening of the resisting forces of the system, I have asked them to co-operate with me. I have told them that there was a possibility of tuberculosis being present, and at the same time have given them all the encouragement possible, saying that if special attention were paid to their manner of living, and if they came for an examination often, and watched their weight, and other conditions that indicate a lowering of the body-resistance, they had every prospect of a permanent recovery.

DR. H. E. FRENCH (University): I was very much pleased with the paper, and it deserves discussion. I have hesitated because I may not be able to add anything. I think the paper was very well worth while, and I hope we have one every year.

One thing has not been emphasized that the paper spoke of, and that is the idea of multiple sanitarium. The State Sanitarium cannot begin to take care of the patients of the state. The idea suggested there I have often thought of. Such a community as Bismarck could well have a little sanitarium and dispensary in connection with it where all, whether they are able to pay or not, could have the advantages of the right kind of treatment, and where people who

are not inclined to learn the right lessons would have to be placed and have to live the right kind of life for their own safety and the safety of others.

DR. S. M. JOHNS (Velva): I would like to emphasize the importance of the value that the State of North Dakota is receiving from this institution for the treatment of tuberculosis. I have personally experienced an advantage among my patients. I have had patients returning who have been educated how to live. They have been taught the hygienic conditions and the dietetic advantages, and how to protect their families from the danger of the disease and how to live in their homes. They have adjusted their domestic lives to fit the conditions as they exist to a large extent in the sanitariums, and that is one feature I think which ought to be appreciated by the medical profession, and this Association, because each of us has patients in our own private practice that are in the condition that they need education as much as they do medical advice and treatment. A parent who has this condition, or even a child who has the disease, if subjected to these conditions of education, will live such lives and exercise the advantages of that education, so that very likely they will extend their own lives and prevent the extension of the disease to the other members of the family and largely increase the safety of the community.

DR. LAMONT (Essayist): I might say that some of the questions raised are difficult. The more one makes a study of any particular subject the less he thinks he knows. The following points, however, may be of further interest.

The urochromogen test of Weizs is performed by dividing a specimen into equal parts, diluting each three times with distilled water. To one of the tubes is then added 3 drops of 1 in 1000 permanganate of

potash solution to 10 c.c. A positive test yields a bright canary yellow color, the first tube being used for comparison. The reaction is positive in patients where the prognosis is unfavorable.

We have had few patients with toxic goiter. We have at present one case in mind in which goiter was present. The patient also had a nephrectomy performed some time previously. We tried tuberculin, but he did not stand it well, whether the great sensitiveness was due to the goiter, the nephrectomy, or some other condition, I cannot tell.

As to immunity coming from arrest of the disease, I believe that theoretically this should be true. A person should be better protected if sufficiently treated. The majority of sanatorium patients stay too short a time, becoming restless after any decided improvement.

Dr. Deming introduced the subject of cure versus arrest. Under the newer classification we have no opportunity in sanatoriums to say that any patient is cured. A cure is classed as one in which no germs have been found in the sputum for two years after abatement of symptoms. The follow-up record is therefore the only record of cure. In arrested cases the germs have disappeared for six months, in apparently arrested for three months. The majority go home therefore, as arrested or apparently arrested, if indeed they choose to remain so long.

With reference to the tuberculin test, as Dr. Altnow described it, I will state that it is considered unsafe to use the hypodermic method as a matter of routine.

With the possible exception of the larger cities, no dispensary work is done in North Dakota.

In most instances the patient, and not the doctor, is to blame for failure to undertake early treatment.

I think these were the principal points raised for discussion.

## ANURIA FOR FIVE AND ONE-HALF DAYS IN A PATIENT ON WHOM LEFT NEPHRECTOMY HAD BEEN DONE

By G. J. THOMAS, M. D.,  
Mayo Clinic

ROCHESTER, MINNESOTA

Case 58,357. Man, aged 43 years. Examined July 3, 1915. Occupation, locomotive engineer.

Nephrectomy of the left kidney for pyonephrosis was done at the Mayo Clinic September 16, 1911, at which time the patient was carefully examined, and the right kidney found to be normal. Three months after the operation he returned home and to his work. He had gained in weight, and seemed to be in good health.

Two years after the operation he had an attack of acute right renal pain and anuria lasting for five hours. This cleared up without treatment, and he had no further trouble until two weeks before coming to the Clinic the second time (July 3, 1915), when he began to feel bad.

He lost his appetite, had a coated, dry tongue, was constipated, and stated that he felt "queer" all over. His home physician thought he was suffering from malaria, and prescribed accordingly. Six days after the onset it was noted that no urine had been passed for five and one-half days. His bladder was catheterized several times without result. Hot packs, saline, and forced water were used during the next thirty-six hours, and he voided sixty-two ounces of urine. Suppression was complete for another twenty-four hours, and during the railway journey to Rochester (500 miles) the patient voided but one ounce of urine. At no time during the two years had there been any pain that might have been due to obstruction of the right ureter.

At the second examination he was very weak, and was carried on a stretcher. The skin was muddy in color and very dry. Mouth, dry. Tongue, coated, dry, and furred. Breath, foul and somewhat urinous. Teeth, in bad condition. Dullness in right chest, posteriorly and anteriorly, with no breath-sounds, and no fremitus over these areas. Left chest, normal. The heart-sounds were good, and no enlargement could be demonstrated. Pulse-rate, somewhat increased. The abdomen was prominent, and there was general tenderness. These findings were more marked on the right side, where there was also a distinct sense of resistance. The abdominal organs could not be palpated. The genitalia were normal. Acute, inflamed, protruding piles made a rectal examination impossible. No edema of any part of the body.

The patient's condition made immediate relief necessary, and he was prepared for cystoscopy. Since this patient had been free from pain, and the history of the onset was somewhat gradual, nephritis was at first thought of, but relief by ureteral catheterization was the logical measure to be tried first, and decapsulation and exploration of the upper ureter to be attempted if this failed. The bladder was normal; the right ureteral orifice was easily found, but no urine was seen during an observation of fifteen minutes. A No. 6 flute-end catheter was introduced into the ureter, and met resistance at its upper third. By a gradual and careful manipulation the resistance was passed, but for about two or three minutes no urine could be obtained through the catheter. Gentle pressure over the kidney was then applied, and a syringe used for suction at the end of the catheter, which resulted in the passage of about two drachms of a thick, ropy mucus, followed by a continuous stream of slightly hemorrhagic urine. Not knowing the cause of obstruction and fearing recurrence, the cystoscope was removed, leaving the ureteral catheter in place. During the first twenty-four hours the patient

passed quantities of clear urine, and his abdominal prominence and rigidity were at once relieved. He felt better within fifteen minutes after the ureteral catheter began to drain. By frequent irrigation with warm boric acid solution, the catheter was kept open for three days. During the last twelve hours of this time the patient seemed to void urine normally, and, since the catheter had slipped considerably, it was removed.

The patient was advised to remain in bed and on his back for two or three days. There was no recurrence of the anuria, and he was then allowed to get up and about. Although somewhat weak, he felt well, and his general condition was greatly improved. Fourteen days later he was apparently normal, and wanted to go to work. At this time Röntgen and cystoscopic examinations showed the kidney and ureter free from shadows and the kidney functioning normally. The functional test gave 51 per cent of phenolsulphonephthalein secreted in two hours. We were much surprised to find no evidence of residual urine in the pelvis at this time. The patient was allowed to go home, but advised not to work for at least one month.

The points of interest in this case are the following:

1. Complete anuria for five and one-half days, and the total amount of urine secreted in nine days 64 ounces.

2. The patient had but one kidney, the other having been removed some time before for pyonephrosis.

3. No history of pain during the present attack.

4. The cause of obstruction not known. No stones or fragments were passed before or after cystoscopy. Röntgen ray was negative.

5. Relieved by permanent ureteral catheter.

6. The patient in apparently normal health after ten days, and no damage to the kidney demonstrated.



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DECEMBER 1, 1915

## NOTICE TO STATE ASSOCIATION MEMBERS

As the fiscal year of many of the State Associations now ends, with the calendar year, on December 30, it is very important, both to the individual members and to the Association, that the dues of every member be paid in time to reach the State secretary before the end of this month. In some Associations three things occur when a member's dues are not in the hands of the State secretary on December 30:

1. The member is no longer insured under the defense feature of the Association.
2. The defaulting member's name will not appear upon the roster.
3. The Association journal will not be received by such member.

Nos. 1 and 2 are the immediate penalties in Minnesota, and No. 3 follows closely.

To incur No. 1 may be very expensive; for a delay in payment of dues for even a few days may mean a damage lawsuit without the moral and financial backing of the Association. To incur No. 2 is discreditable to a man who recognizes the importance of having his name enrolled with the best men in the profession—men who are seeking the welfare, not only of the

profession, but of the public. This roll, or roster, is widely circulated; and the absence of one's name from this roll puts it on the other,—the roll of men who do not recognize either the personal advantage or the public obligation of organized effort on the part of the honorable profession of medicine.

The man who is slow in the payment of his dues has no warranty to impute to the secretary of his local society an impelling desire to get such dues without the loss of a moment to the State secretary; and even the member's slowness may incur penalty No. 1, if not No. 2.

Pay up the moment you read this gentle warning!

See special notice on page 672.

## THE CAUSE AND CURE OF PELLAGRA

We marvel—and well we may—when we read, as we did last month, that a wireless telephone message was sent from Washington to Paris, on the east, and to Honolulu, on the west. Talking by wireless telephone several thousand miles marks, indeed, a marvelous human progress. As great as it is, there is something in our modern progress yet greater; and that is the conquest of disease.

At almost the same time that the news of the wireless telephone message reaches us, comes authentic news, also from Washington, that the United States Public Health Service has discovered the cause and the cure of pellagra.

To us in the Northwest, where only an occasional case of pellagra has originated, this disease has little interest, and no terror; but in parts of the South, its mortality is exceeded by only tuberculosis and pneumonia, and there it has a terror. Moreover, the number of cases in the United States during 1915, it is estimated, will reach 75,000, with a mortality of 10 per cent, or 7,500 deaths.

The complete conquest of such a disease may be less interesting than the discovery of wireless telephony; but it is far more important.

## POSTGRADUATE WORK IN EUROPE

No matter what may be the eventual outcome of the European war, one fact is certain.—it will be many years before Germany and Austria will again reach the high position they had acquired in the eyes of the American medical profession as a mecca to which occasional pilgrimages served as both a stimulus to new ideas and a rest from the exacting duties of practice. The custom of

spending a few months or even a few years in Vienna, Berlin, or other German university medical center was fast becoming a fixed idea in the minds of the young graduate and the more ambitious older practitioner. No medical training was quite complete unless he could discuss learnedly his experiences in the typical German clinic or in the "courses" of some famous German or Austrian scientist. While there had arisen some abuse of this custom, such as a tendency to "trade" on the trip itself and to use a mere speaking acquaintance with a few superficial snap courses as a substitute for real effort to acquire new ideas, on the whole, the influence of these pilgrimages was beneficial, and the demand for them or a suitable substitute may be expected to continue as insistent as before the war.

For several reasons the schools of the Central Powers will be largely left out of consideration. For one thing, the war itself has disorganized both the American Medical Associations in Vienna and Berlin; and the courses which were previously offered under their auspices must wait for new lists and years of reconstruction. Again, the flood of antagonistic feeling which the war has engendered throughout the civilized world will tend to influence, for years to come, the choice of the prospective medical traveler. The English, Canadian, Japanese, Belgian, Italian, and Russian students, who thronged the German clinics, will no longer help to build up that wonderful system of postgraduate instruction for which the Germans have been so justly noted.

Just what part prejudices arising because of the war will eventually play among medical men in the United States, is difficult to estimate. At the present time the state of feeling in both Germany and this country would most assuredly tend materially to reduce the number of our doctors who would care to enter German clinics, even if such clinics were available. In the meantime, therefore, it is clear that other sources of postgraduate education must be utilized; and here again it is becoming increasingly evident how the ill wind is blowing *some* good, and the forcing of our own doctors to "see America first" will not only solidify and strengthen the profession as a whole, but will tend immeasurably to develop in our midst adequate systems of fulfilling the needs of our medical graduates,—needs which German teachers have so cleverly anticipated and to which they have assiduously catered. We have the foundations for this work already well established: large clinics are becoming numerous, experienced teachers are giving more and more time

to this side of medical education, and the real need of going outside our own country is rapidly diminishing.

However, to a certain few the new experiences, the enthusiasm aroused, and even the isolation and consequent opportunity to do uninterrupted work, make a "trip abroad" almost a necessity or at least a most welcome luxury. In former years it was not customary to consider Great Britain as a possible field for acquiring advanced medical knowledge. Possibly, we have been making a mistake. In the October number of the *Atlantic Monthly* Abraham Flexner, in an able and exceedingly timely article, reviews "The English Side of Medical Education." He compares the English system, built up around the hospital and its clinical branches, while the laboratory subjects lag somewhat, with the German schools, possessing their "excellent facilities, a trained student body, and a genuine university professoriat," in which latter respects, he states, "English medical education fares badly in comparison." In respect to the clinical teaching, however, the comparison is all in favor of the English method. To England we owe the idea of the clinical clerkship, and the student has always obtained the greater part of his clinical training by actual observations and work upon the patients in the wards. As Flexner points out, not only does the student thus develop initiative,—finds things out for himself,—but his education consists in real contact with actual cases of disease. Over against the German use, and often abuse, of the didactic lecture, the English system should certainly prove more attractive to the American student.

The Royal Commission, which, with Viscount Haldane as chairman, has been planning a complete reorganization of university education in London, recommends "the appointment of professors of the various branches of clinical medicine and surgery who will devote the greater part of their time to teaching and research."

In the laboratory subjects the English schools\* have been making giant strides within the last few years; and with their wealth of clinical and pathological material, their generous use of ward teaching, and their recognition of the gaps in their already excellent system, American physicians will do well if they consider, in their plans for study away from home, the land most closely united to us in ideals, customs, and language. We can well afford to share with England the future postgraduate education of our coming doctors.

\*Robertson, H. E.: "Pathological Laboratories of Great Britain," *The Journal-Lancet*, October 1, 1915.

## EFFICIENCY BREEDS EFFICIENCY

Arrowrock has come and gone, but it left a valuable lesson. Arrowrock was a city, a village, or a camp—as you please to call it—twenty miles from Boise, Idaho, where the United States Government recently finished one of the world's largest irrigation dams. It was estimated that it would require five years to build the dam, and that the cost would be seven and a half million dollars. The work was done in *four* years and at a cost of *five* million dollars.

The above is a wonderful story, and so is the story of the building of the Panama Canal; but efficiency breeds efficiency, and the story of the building of the great canal or of this great dam is not half told in the saving alone of estimated time and money. Each event, great and almost unprecedented in its material aspects, is greater in another direction. The conquest of disease in the Panama work is a well-known story. A like work was done at Arrowrock, but it is not so well known.

About twenty thousand men were engaged on the Arrowrock dam, and most of them spent some time in Arrowrock,—camp, village, or city. Medical men had charge of the health of all who lived in Arrowrock or worked on the dam. Sickness was almost unknown, and there was no epidemic of any kind. There was a single case of typhoid fever, the patient unquestionably having contracted the disease elsewhere.

This is what sanitary science can do when given a free hand; but an uneducated public prefers to hamper, not to help, those who know how and want to save human life, at once the cheapest and the dearest thing in the world.

## APPRECIATIVE WORDS ABOUT OURSELVES

Almost in the same mail two letters came to the office of THE JOURNAL-LANCET which are pleasant reading to us, and, we hope, will be to our readers. One is from Tennessee, and says:

When I moved from Minnesota I let my subscription to THE JOURNAL-LANCET lapse, now I find that I cannot get along without it in spite of the fact that I take the *Tennessee State Association Journal*, the *Southern Medical Association Journal*, the *Annals of Surgery*, the *Murphy Clinic*, and *Surgery, Gynecology, and Obstetrics*.

The second letter comes from California, and from it we take the following:

A few weeks ago I wrote you asking that THE JOURNAL-LANCET be stopped for the present. I find that I have taken it so long that I greatly miss its presence, so am asking that you put my name on your list again.

## CORRESPONDENCE

## THE EMBARGO ON DRUGS AND CHEMICALS

TO THE EDITOR:

I hereby enclose copy of a resolution adopted by the Indiana Eighth District Medical Society recently. The matter of supply of drugs and chemicals in the United States is becoming more acute right along, and is a serious condition, a source of worry and hardship to the physician and druggist, and of hardship and even danger to the patient. Some drugs are entirely exhausted; others are fast becoming so at a prohibitive price.

Since there is no excuse, no justification for the prevailing interference with our legitimate trade or commerce, with the importation of drugs and chemicals, prompt action should be urged upon and taken by every medical society or association of the United States.

This is not a matter of partisanship, nor a matter of pro-Ally or pro-German, but a matter of pure business and of exerting our rights and of performing our duty as the party or profession directly concerned.

Trusting that you will—through your Journal—give this matter the support it deserves, I remain,

Yours very truly,

L. F. SCHMAUSS, M. D.

## RESOLUTION

To the Honorable Robert W. Lansing,

Secretary of State,

Washington, D. C.

Dear Sir:

WHEREAS, owing to the present conditions due to the inability to import drugs and chemicals necessary in the treatment of the sick and injured, by reason of which the price has so advanced, that in many instances it becomes prohibitive and in others absolutely impossible to obtain them, and

WHEREAS, this condition imposes a great hardship upon physicians and patients, and in many instances endangers the life and health of the people, therefore

We exceedingly deplore this condition and pray that you will use your best efforts to speedily relieve the same.

L. F. SCHMAUSS, M. D.

I. N. TRENT, M. D.

G. REYNARD, M. D.

Committee.

Copies of the above were also sent to President Wilson, Senator Kern, Senator Shively, and Representative Adair of Indiana.

Alexandria, Ind., Nov. 15, 1915.



## NEWS ITEMS

### NOTICE TO THE MEMBERS OF THE MINN. STATE MEDICAL ASSOCIATION AND THE SECRETARIES OF THE COMPONENT SOCIETIES.

On December 1 blanks will be sent to each secretary. The Secretaries are requested to fill in the names of their members in alphabetical order for the roster of 1916. As these blanks are for permanent records in State Secretary's office care must be taken to have all names spelled correctly, with initials and address correct. All memberships expire automatically on Dec. 31, and all whose names do not appear on these rosters for 1916, which must be in the hands of the State Secretary by Jan. 1, will lose the benefits of membership.

Adams, Minn., now has a hospital.

Dr. Ray Gardner, of Badger, has moved to Eveleth.

Dr. C. I. Spannier, of Walker, has located in Forman.

Dr. Walter Verity, of Beresford, S. D., has moved to Chicago.

Dr. H. W. Coulter, of Mountain Lake, has located at Sharon.

Dr. H. O. Williams, formerly of Balaton, has moved to Lake Crystal.

Dr. W. E. Blatherwick, of Plaza, N. D., has located in Van Hook, N. D.

Dr. Tord Neilson, formerly of Edmore, N. D., has located at Milnor, N. D.

Dr. H. C. Cooney, of Princeton, has completed several weeks' study in clinics of the East.

Fourteen nurses were graduated on November 18 from Northwestern Hospital, of Minneapolis.

Dr. L. B. Vaughan, of Hurley, S. D., was married on November 16 to Miss Viola Fraser, of Downers Grove, Ill.

Dr. Thomas Strong, of Williston, N. D., has received an appointment as a member of the German Red Cross Corps.

Dr. F. J. Sykora, of Brainerd, died in a St. Paul hospital on November 17, at the age of 38. Death followed several operations.

Dr. H. E. Peterson, of Graceville, has bought the practice of Dr. G. D. Crossette, of Chokio. The latter has moved to North Dakota.

A book-shower for tubercular patients was a

feature of the last meeting of the Woman's Auxiliary of the Hennepin County Medical Society.

Dr. H. D. Valin, for many years pathologist at the State Hospital at St. Peter has accepted a like position at the hospital at Fort Wayne, Ind.

Dr. G. F. Pugh, formerly of White River, S. D., has bought the practice of Dr. J. E. Dunn, of Stratford, S. D. Dr. Dunn has moved to Groton, S. D.

Dr. James van Buskirk, for many years a resident of Rapid City, S. D., died on November 10 at Long Beach, Cal., where he has resided for the past few years.

Dr. J. J. Donovan, of Litchfield, expects to leave early in the month for Paris, where he is to specialize for several months on oral work on wounded soldiers.

Dr. W. M. Stratton, of Granite Falls, died at his home on November 9 at the age of 71. His death was due to a stroke of paralysis, which he suffered several weeks previously.

Dr. E. B. Bradford, who so successfully conducted the Hudson Sanatorium, which he sold some years ago, has resumed charge of it, and has made a number of important improvements in the building.

Dr. J. P. Rosenwald, of Mankato, has returned from a month's work in Philadelphia clinics, and has located at Minneapolis. Drs. A. J. Wentworth and A. A. Wohlrabe have bought his Mankato practice.

A physician of high standing, who is going to Europe to do relief work in London or Vienna, seeks through our special reading notices, below, for the names of any other Northwestern men who contemplate a like trip.

A judge in Aberdeen, S. D., has issued an order, at the request of certain citizens, for certain druggists of the city to take before the court all prescriptions issued by Aberdeen physicians since July 1 for the court's examination. That judge will learn some elementary law before he sees those prescriptions.

We print in another column a letter from a former Minnesota physician with resolutions passed by an Indiana district medical society upon the embargo on the importation of drugs and chemicals. This embargo is, of course, against Germany, and the principal drug, presumably, is salvarsan. The United States Press recently called the attention of the country to the same subject.

Dr. Trudeau, known throughout the world for

his work at Saranac Lake in the Adirondacks, died last month at the age of 67. After his graduation in medicine, in 1871, from Columbia, he suffered from tuberculosis, and at once came to Minnesota seeking relief. He soon began his life-work against the scourge, and the world pays high tribute to him for his success as a pioneer and teacher.

The Stearns-Benton Society held its quarterly meeting at St. Cloud on October 21, with twelve members present. Papers were read as follows: "Infections," by Dr. David E. Stangle, St. Cloud; and "Glaucoma," by Dr. Thos. McDavitt, St. Paul. Each was fully discussed. A rising vote of thanks was extended to Dr. McDavitt for coming up here and giving us an opportunity to hear the valuable and interesting paper.

The November meeting of the Minnesota Academy of Medicine was held on the 3d ult., at the Town and Country Club, St. Paul. Dr. Geo. Douglas Head presented a peculiar case of skin lesion. Dr. C. E. Riggs read a paper on "Some Things Neurological," which was discussed by Drs. A. S. Hamilton and Herbert Jones. Dr. Wm. Lerche read a thesis on "A Contribution to the Etiology of Cancer of the Esophagus and Stomach." The number in attendance was 28.

Dr. George G. Eitel, of Minneapolis, was given a complimentary dinner last week at the new Athletic Club by his friends,—some of them. The Athletic Club, big as it is, would not hold them all. Ministers, newspaper men, bankers, city officials, members of the staff of the Medical School, and other prominent citizens spoke, each expressing the city's high appreciation of Dr. Eitel. A handsome bronze clock for the hall of the Eitel Hospital was presented to Dr. Eitel.

The Chicago Ophthalmological Society has just inaugurated a special annual meeting at which guests from other cities present clinics in the afternoon and read papers, in the evening, concerning the subject demonstrated in the clinics. The guests of the society at the first meeting of this character held on November 15, were Dr. Harold Gifford, of Omaha; Dr. Dunbar Roy, of Atlanta; Dr. Walker Parker, of Detroit; and Dr. Frank C. Todd, of Minneapolis. Dr. Todd's subject, for the afternoon clinical demonstration and the evening paper, was "Cataract Operations Demonstrating Undetached Conjunctival Flap on the Temporal Side."

The Associated Charities of Minneapolis cele-

brated its 30th anniversary last month. At its head have been such men as Dr. Frank L. McVey, now president of the University of North Dakota; James F. Jackson, now head of the Associated Charities in Cleveland; Edwin F. Solenberger, now head of children's work in Pennsylvania, and Eugene T. Lies, now head of the United Charities in Chicago. Its present executive, Mr. Frank J. Bruno, was for three years superintendent of district work in the New York Charity Organization Society with fourteen city districts under his care and a corps of seventy to eighty workers under his direction.

At the November meeting of the Hennepin County Medical Society, Nov. 1, the attendance was 55. Dr. John W. Lee presented a case of cyst of the iris; Dr. J. P. Sedgwick presented a case of tuberculosis illustrating the Rollier sun treatment; and Dr. J. P. Schneider presented a case of enlarged spleen. The subject of the evening was "Tuberculosis in Infancy and Childhood." Dr. E. J. Huenekins spoke on the mode of entrance and the pathology; Dr. F. C. Rodda, on the symptomatology and diagnosis; and Dr. F. W. Schlutz, on the prognosis and treatment. A general discussion followed. Drs. Chas. W. Bishop and Benj. F. Iden were elected members.

#### PHYSICIANS LICENSED AT THE OCTOBER (1915) EXAMINATION TO PRACTICE IN MINNESOTA

##### UPON EXAMINATION

Baxter, Donald Erskine.....	Louisville, 1909
Bjerken, Frederik Nikolai.....	Rush, 1915
Dahl, Daniel L.....	Fort Wayne, 1898
Doupe, Rupert.....	Western U., Ontario, 1915
Harris, Carl N.....	Rush, 1915
Johnson, Odin James.....	Harvard, 1915
Johnson, Reuben A.....	Minnesota, 1915
Robinson, Samuel.....	Harvard, 1902
Sorose, Bernard.....	Minnesota, 1915

##### BY RECIPROCITY

Burns, Hiram Delaney.....	Nebraska, 1914
Fansler, Walter A.....	Johns Hopkins, 1914
Griffin, Patrick Joseph.....	Northwestern, 1913
Ikeda, Kano.....	Illinois, 1914
Kennedy, Harry T.....	P. & S., Chicago, 1903
Rosholt, Albie Jens.....	Rush, 1908
Sather, Edgar.....	Raymond, Iowa, 1915
Sistrunk, Walter Ellis, Jr.....	Tulane, 1906
Smith, Richard Cecil.....	Washington, 1911
Stomel, Joseph.....	Maryland, 1911
Taylor, James Rodolph....	Richmond, Va., 1907
Timblin, William Stanley.....	Rush, 1913

## PHYSICIANS LICENSED AT THE OCTOBER (1915) EXAMINATION TO PRACTICE IN MONTANA

Armour, George E., Lambert  
 Arnold, Ferris L., Billings  
 Berry, Kent W., Miles City  
 Buckley, W. E., Glendive  
 Clancy, L. J., Virginia City  
 Collins, William W., Genou  
 Eisengraeber, G. A. D., Alberton  
 Estabrook, W. E., Sentinel Butte, N. D.  
 Faulds, W. S., Roy  
 Haywood, Guy T., Miles City  
 Heaton, A. B., Bozeman  
 Isom, F. M., Livingston  
 Johnson, C. A., Livingston  
 Meany, Olive Slate, Plains  
 Patizek, Frank J., Basin  
 Patton, Frank R., Roy  
 Perkins, J. R., Fairview  
 Tobinski, J. J., Missoula  
 Tremblay, J. L., Butte  
 Ungherini, Vezio O., Butte  
 Vitkin, Louis, Butte  
 Weedman, W. F., Joliet  
 Yates, C. A., Williams

### POSITION OFFERED

Wanted, an eye, ear, nose, and throat specialist to take my office and buy my furniture in a large city of Montana. Rent cheap. Address 284, care of this office.

### LOCUM TENENS WANTED

I want a physician to take my practice for a year with prospect of permanent location. Am leaving for postgraduate work. Address 280, care of this office.

### OFFICE POSITION WANTED

A young lady, having had two years of hospital training, desires position as office nurse, or position not requiring a graduate nurse. Address 285, care of this office.

### LOCATION WANTED

Good location, mine or camp contract, in Wisconsin, Minnesota, North Dakota, or Montana wanted by young physician. Would like to associate with surgeon also. Address 283, care of this office.

### POSITION WANTED

Young lady with experience in physician's office and some hospital training, who can assist with dressings, would like to act as an attendant in busy physician's office. Address 277, care of this office.

### PHYSICIAN FOR WAR SERVICE WANTED

An ophthalmologist leaving for Europe (probably London) about January 1, to do clinical work, or assist in relief service as opportunity affords, would be glad to correspond with any physician having a similar object. Address 281, care of this office.

### PHYSICIAN'S OFFICE FOR RENT

A good location for a physician and dentist. Call or address E. A. Tupper, Druggist, Chicago Ave. and Tenth St., Minneapolis, Minn.

### LOCUM TENENS WANTED

I want a regular experienced physician to take my practice for two months, beginning Jan. 15, 1916. Location northeastern South Dakota. Liberal proposition for right man. Address 276, care of this office.

### LOCUM TENENS WANTED

Regular physician with experience wanted to take my practice for three and one-half to four months, commencing January 26, 1916. Located in a South Dakota county-seat town. Practice averages over \$6,000 a year. References as to ability required. Address 282, care of this office.

### POSITION WANTED AS X-RAY OPERATOR AND OFFICE GIRL

University trained young woman, experienced x-ray operator, is open for engagement with physicians or hospitals. Can also take care of office correspondence, accounts and records. References. Address 278, care of this office.

### PRACTICE FOR SALE

Minnesota practice of \$4,000 yearly in town of 2,000, county-seat, center of fine farming district; only 2 other doctors; mainly Scandinavian and German population. Place goes for price of 3-room office equipment, furniture, and drugs. Price very low if taken soon. Good reason for selling. Address 275, care of this office.

### PRACTICE FOR SALE

One of the best country practices in North Dakota for sale cheap. Located in a town of 300 in the Red River Valley, among well-to-do farmers, with no competition nearer than 14, 17, 22, and 25 miles. Population, mostly Norwegian, therefore a Norwegian physician preferred. I have lived here 17 years and now wish to retire. Will sell instruments and office fixtures with good-will for a very reasonable price. I have made good, and now someone else can do the same. Write for full particulars. Address 286, care of this office.

### PRACTICE FOR SALE

My modern, 9-room residence with 3-room offices adjoining and practice established over 7 years which has consisted almost entirely of office work (no specialty) and which has paid me over \$11,000 cash in past 3 years. This figure can be materially increased by man who will make country trips, answer night calls and accept obstetrical cases. \$1,500 cash will swing deal, balance on easy terms; I am going East to take up special work and desire to leave by January 1st. This is a snap for someone. Address 279, care of this office.

### DOCTOR

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-ninth annual session opens September 27, 1915, and closes June 3, 1916. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.



## The Paraffin Oil Treatment

### of Intestinal Stasis

depends mainly for success on the quality and character of the paraffin oil employed. If it is of the proper viscosity, and free, not only from the lighter hydrocarbons and sulphur compounds but also from taste, odor or acidity, *it may be depended upon to produce the results desired.* Thus it is that

# INTEROL

(Reg. U. S. Pat. Off.)

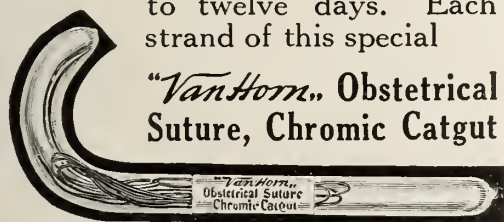
—an American paraffin oil meeting every requirement for internal use—may be administered by the careful physician with every confidence that his “stasic” patients will obtain maximum benefit, with complete freedom from the renal disturbance or intestinal irritation that is so liable to occur from petroleum oil of uncertain quality. INTEROL is obtainable from druggists generally.

Booklet on request

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## IN THAT CONFINEMENT TEAR

If you favor immediate repair, use our especially chromicized catgut prepared to hold seven to twelve days. Each strand of this special



**"Van Horn," Obstetrical Suture, Chromic Catgut**

is threaded on a suitable needle, ready for instant use. Indispensable for your surgical bag. One tube in each box. Price, 25 cents each; \$3.00 per dozen tubes. No samples.

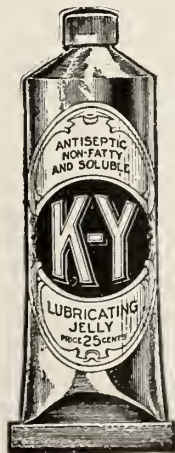
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## "The Cleanest of Lubricants"

**K-Y Lubricating Jelly** (REG. U. S. PAT. OFF.)  
"The Perfect Surgical Lubricant"



Absolutely sterile, antiseptic yet non-irritating to the most sensitive tissues, water-soluble, non-greasy and non-corrosive to instruments, "K-Y" does not stain the clothing or dressings.

Invaluable for lubricating catheters, colon and rectal tubes, specula, sounds and whenever aseptic or surgical lubrication is required.

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## PUBLISHER'S DEPARTMENT

### ANTIPHLOGISTINE

Antiphlogistine provides the best, most agreeable, and convenient known means of supplying continuous moist heat in all inflammations. This can be maintained for twenty-four hours or longer at a uniform temperature. Ordinary poultices soon become cold, clammy, and uncomfortable to the patient, and lose any remedial effect they may have had before becoming cold.

### THE RIGHT OIL AND THE DOCTOR'S CAR

There is an engine in an English mine that has run continuously for nearly one hundred years. The secret of its life? Right oil.

Every doctor's car needs the right oil for even its short life more than does the English engine. And why? Because a doctor's car gets very hard usage. Necessity will not spare it. If it is to be kept in prime running order, no oil for this purpose is quite equal to Polarine, which is the highest product of the best skill obtainable by the Standard Oil Company.

### THE MEDICAL PROTECTIVE COMPANY

This Company has worked out the problem of "prevention, defense, and indemnity" to the entire satisfaction of the medical profession. Its rates are moderate, and its protection is complete. It writes a policy so plain that there is no room for haggling when the pinch comes; and its legal experts are so efficient it has no occasion for compromise with legal shysters, few of whom depend upon anything but bluff.

The company issues, "free for the asking," an admirable pamphlet on "Medical Practitioners' Legal Duty to Render Services."

### THE MILWAUKEE SANITARIUM

Very few men have done as much as Dr. Richard Dewey to demonstrate that institutional life is far superior to home life in restoring to health the mental and nervous wrecks made by our modern life in numbers so great that no one can estimate them.

Dr. Dewey brings to his work high professional attainments and rare executive ability.

Wauwatosa, the home of the Milwaukee Sanitarium, is a beautiful place, a suburb of Milwaukee; and both the buildings and their surroundings are ideal for an institution of this kind.

### HORLICK'S MALTED MILK: A REMARKABLE TESTIMONIAL

*The Farmer's Wife*, a St. Paul periodical, with a circulation of 750,000, recently put to its readers a questionnaire for sociological purposes. The editor was seeking to learn what is eaten and worn or otherwise used by the families of the farmers in this country. In order to determine the qualities of the things purchased and used, the brands of such things were asked for.

Under the head of "baby foods," 6,123 reports were received. Forty-five brands were named, but only three were named over one hundred times. Horlick's led the list, being mentioned 479 times.

This canvass was so absolutely impartial, and the

results are so astonishing, the only conclusion to draw is, that "Horlick" is a household word in the homes of American farmers, even where cow's milk is "as free as water," so to speak.

### THE HUDSON SANATORIUM

Our readers will remember that, some years ago, Dr. E. B. Bradford, who came from Milwaukee, took charge of the above institution, and built up a splendid patronage based upon a service that met the approval of medical men.

Dr. Bradford left Hudson several years ago for the coast, having sold his interest in the sanatorium. The new management was not successful; and now Dr. Bradford is back again in charge. The building has been largely remodeled and modernized, and the sanatorium is now open to repeat its former success in the treatment of nervous cases and drug addicts.

### THE LESSON OF THE IROQUOIS FIRE

At the time of the terrible Iroquois Theater fire in Chicago there was a great deal of discussion, as there always is *after* such a disaster, about emergency exits for public buildings. The only sensible contribution to the discussion was made by a famous architect in the city, who said: "The only way to insure adequate emergency exits is to have no emergency exits at all; have plenty of exits, and keep them in routine use all the time."

A sound principle, and just as applicable to every other sort of emergency as to fires,—to the practice of medicine, for instance. Unless you carry with you the remedies and appliances for dealing with emergencies all the time, they are useless when the emergency arises. Calcidin (Abbott) is an emergency remedy of the first water in cases of croup, of which you will meet a plenty in the next six months. Nothing else takes its place. It's a case of "you want what you want when you want it." Provide yourself with a plentiful supply of Calcidin (Abbott) now, and see that you carry it at all times, wherever you go. Then an emergency will not be an emergency for you. Calcidin literature will be sent you by the Abbott Laboratories, Chicago. Write to them.

### DESIRABLE INVESTMENTS

If you have read the November number of *McClure's* you will remember a very interesting article, headed "Keeping Your Money at Home," written by Albert W. Atwood, the financial expert of the publication. In closing, Mr. Atwood says:

"Finally I want to urge readers of this article who have money to invest to look around and see whether any of the great, fundamental public-utility enterprises in their own section are offering stock to customers."

He then mentions three examples, naming the Northern States Power Company as one, with particular stress upon the partial-payment plan feature, and continues:

"Perhaps other great public utility companies have taken similar steps to cement the bonds of good will between themselves and their customers. It is one of the healthiest and soundest investment tendencies of recent years. The small investor is catered to on easy terms. He is dealing with a responsible organization. He knows what he is buying. As a customer he can add to its value. It is a co-operative, profit-sharing



enterprise in the most pronounced sense. Most important of all, the investor is in a position to investigate and follow the development of the enterprise into which he has put his money."

The publisher of THE JOURNAL-LANCET recently asked a well-known investment banker, who, however, does not sell these securities, his opinion of them. He said that they are first-class, and that the unusual rate of interest paid is due to the fact that unusual profits are a certainty to every well-conducted public-utility corporation in a large population center.

If you are not already familiar with the investment merit of Northern States Power Company's 7% preferred stock, the general manager, Mr. R. F. Pack, will be glad to place full information in your possession enabling you to make a thorough analysis. The Minneapolis General Electric Company is a part of this large organization.

#### WHOOPING-COUGH A SERIOUS DISEASE

In an address before the New York Academy of Medicine, reported in the *Archives of Pediatrics*, August, 1914, John Lovett Morse, A. M., M. D., professor of pediatrics in the Harvard Medical School, made this significant statement: "The relative mortality from whooping-cough, scarlet fever, and diphtheria is essentially the same throughout the country, whooping-cough being almost everywhere more fatal than scarlet fever and less fatal than diphtheria. \* \* \* Instead of being a trifling affair, as it is usually considered to be by the laity, whooping-cough is a most serious and fatal disease. 'Any disease which kills 10,000 children per annum is,' as Rucker says, 'a serious one. If the bubonic plague were to kill that many children in the

United States in one year, the whole world would quarantine against our country. A child dead of whooping-cough is just as dead as the child dead of plague."

In the same issue of the journal above referred to, the editor, an undoubted authority, says that "whooping-cough causes more deaths in children under one year than any other infectious disease."

In view of these startling facts, is it not just possible that the profession at large, like the average layman, has been too prone to look upon whooping-cough as an inevitable concomitant of childhood, and to underestimate its seriousness?

The Bordet-Gengou bacillus is recognized as the specific cause of whooping-cough, and the most rational method of treating the disease is by means of vaccine prepared from cultures of this bacillus. It is pertinent in this connection to refer to two such vaccines which are manufactured and marketed by Parke, Davis & Co. One bears the name of Pertussis Vaccine; the other is designated as Pertussis Vaccine, Combined. The first-mentioned vaccine is indicated in cases diagnosed as pertussis, in suspected cases when a definite diagnosis is lacking, and as a prophylactic. The second is indicated in all cases of pertussis, but especially those which have persisted for some time, such infections being usually of the mixed type. The vaccines are administered hypodermically and are supplied in bulbs, in rubber-capped vials, and in glass syringes. The various packages are fully described in an announcement which appears elsewhere in this journal under the caption, "The Vaccine Treatment of Whooping-Cough." The advantages of the vaccine treatment are succinctly stated in the advertisement, which our readers are advised to consult.

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## RADIUM IN DERMATOLOGY\*

BY S. E. SWEITZER, M. D.  
MINNEAPOLIS

Radium was first used in dermatological work. The use of the rays was brought about by Becquerel<sup>1</sup> who put a tube of radium in his pocket, and a burn resulted. This drew attention to its action upon the skin, and Professor Curie gave a quantity to M. Danlos, of the Hospital St. Louis, and experiments were begun upon cutaneous therapy.

Radium occurs in nature associated with barium. The radium element itself is very difficult to obtain alone; and therefore it is used in the form of a radium barium salt.

For cutaneous work radium is used in flat varnish-applicators, which have a metallic back, and are usually square. The radium is evenly distributed over the surface, and covered with a varnish. These applicators are prepared in full strength, half strength, and quarter strength. A full-strength applicator contains 5.4 milligrams of radium element per square centimeter of surface. A half-strength applicator contains 2.7 milligrams of radium element per square centimeter of surface; and a quarter-strength contains 1.35 milligrams per square centimeter. I have found a half-strength applicator containing 10 milligrams of radium element most serviceable for general cutaneous use.

It is important to know how much radium is used, how screened, the length of time used, and the total time used. Merely to say that "I cured a Röntgen-ray carcinoma with radium," as has recently been done, not stating the amount used

or the time applied, is of little help to others. Generally speaking, when a large quantity of radium is used a shorter time is necessary to produce a given effect than if a small quantity is used.

Radium gives off alpha, beta and gamma rays. The alpha rays are cut off by the varnish in the applicator. We use the beta and gamma rays. The gamma rays are many times more penetrating than the ordinary Röntgen ray, but the new Coolidge tube gives off rays that approximate the gamma rays of radium.

It has been found that using the radium without any screen or filter is irritating to the skin, and may produce telangiectasis; and therefore we interpose filters of different metals in varying degrees of thickness, according to what extent of rays we wish to cut out. As the radium in contact with these various metals causes them to give off secondary rays, which are irritating to the skin, we cover these screens, or filters, with several layers of black photographic paper, and outside of this a piece of rubber dental dam.

In order to protect the healthy skin, if the lesion is smaller than the applicator, I use about five or six thicknesses of ordinary lead foil, and cut it out to fit the lesion to be treated. A piece of dental dam is placed under the lead next to the skin to avoid the secondary rays. I hold the protector on by means of adhesive strips, and then place the radium over the lesion and fasten it with adhesive.

When radium is used on the skin, we get reactions of varying degrees of intensity, such as (1) simple erythema; (2) erythema followed by

\*Read at the 47th annual meeting of the Minnesota State Medical Association, at Rochester, September 30 and October 1, 1915.

desquamation; (3) vesiculation with superficial ulceration; (4) deep ulceration with the formation of a scar. These reactions depend upon the amount of radium used, and the filter and the length of time used. Pusey<sup>2</sup> says that the manifestations of a radium reaction are first seen in the endothelium of the superficial vessels, almost as soon as in the epithelium of the glands of the skin; then in the deeper epithelial layer; and, finally, in the connective-tissue structure of the skin. It exerts a selective action upon diseased cells; and in this manner they are destroyed, and the healthy cells left.

Radium has been used in a large number of skin diseases. I will touch upon its use in pigmented and capillary nevi, lupus erythematosus, and epithelioma, as I have found it especially valuable in these conditions.



Fig. 1. Epithelioma of the nose, cheek, and upper lip. Photograph taken Oct. 8, 1914.

Fig. 2. After treatment with one-half strength applicator unscreened for four hours, and repeated in five weeks. Photograph taken Jan. 11, 1915.

In raised pigmented nevi a dose sufficient to produce a slight crusting is used. I use a ten-milligram applicator screened with 0.1 mm. silver for thirty minutes. This can be done two or three times with two-day intervals.

In capillary nevi I use a screen of .01 mm. of aluminum, giving applications of fifteen to twenty minutes. After the reaction is over, this can be repeated until the desired result is obtained. In a few cavernous angiomas of children I have proceeded with a screen of 0.1 mm. silver, using about the same dosage as for the elevated pigmented nevi. In general, I have found the cosmetic results excellent. It must be remembered, however, that we must make haste slowly; and many months must elapse before a cure is completed. Too large or insufficiently screened doses will produce a white scar, instead of normal-looking skin.

#### CASE-REPORTS OF TWO CURED CASES

CASE 1.—Baby L., aged 3 months. Angioma the size of a marble on the right cheek. November 9, 1914, radium screened with black paper (I was unable to obtain the .01 mm. aluminum filter at that time) used for 20 minutes. A slight reaction resulted, and some flattening occurred. November 30, 1914, the same screening radium used for 30 minutes, with slight reaction and shrinking. January 11 and January 15, 1915, I used a 0.1 mm. silver filter for 30 minutes. February 26, 1915, the same dose was given. Seen on April 6, 1915, the result was fine.

CASE 2.—Baby Lundquist, aged 3 months. Large elevated pigmented nevus behind the right ear. November 4, 1914, radium 10 minutes; November 21, 30 minutes; December 29, 30 minutes; February 24, 1915, 35 minutes.

These were all screened with black paper. April 12, 14, 16, 1915, radium was used for 30 minutes with a screen of 0.1 mm. silver. On May 21, 1915, the baby was seen and the result was excellent.

Lupus erythematosus is a most intractable dis-



Fig. 3. Epithelioma on the left cheek. Photograph taken June 5, 1915.

Fig. 4. After treatment for eight and one-half hours with one-half strength applicator screened with 0.1 mm. silver. Photograph taken Sept. 2, 1915.

ease; and numberless remedies have been recommended in its treatment.

Simpson<sup>3</sup> reports a number of cases treated with radium with excellent results. I have treated only a few cases. One is nearly cured at the present time, and the others are too recent to report results. It does not prevent recurrences; but in favorable cases good results may be expected.

It is necessary to use destructive doses; and filtering is indicated to prevent excessive reactions. I use a 0.1 mm. silver filter, and ray one hour a day for five or six days. It is often necessary to repeat this dose; and sometimes I have found it better to use radium unscreened in cases that are very intractable. My results have been promising, but the treatment is of necessity very tedious.

Epithelioma, as is well known, responds beauti-



fully to radium, often curing where the Röntgen rays have failed. I first treated these cases with radium unscreened; but I have found a deeper penetration and less reaction by using a 0.1 mm. silver screen, and ray for one or two hours a day for a total of eight or ten hours. My results have been most excellent.

#### A CASE OF EPITHELIOMA

One of my early and most interesting cases was Mr. M., aged 77. He had an extensive rapidly growing epithelioma on the left side of the nose, the left cheek, and the upper lip. It was not an operable case.

In October, 1914, I gave him an unscreened exposure of an hour a day for four days. It required three applications of the radium at each sitting to go over the lesion. In five weeks this was repeated; and in January, 1915, one small



Fig. 5. Described in text as Case 1. Angioma on the right cheek. Photograph taken Nov. 9, 1914.

Fig. 6. After several treatments with one-half strength applicator. Radium used screened with black paper and later with 0.1 mm. silver screen. Photograph taken Oct. 2, 1915.

spot was still active, and therefore I used a 0.1 mm. silver screen, and gave a total exposure of seven hours. To date he has remained well and the cosmetic result is all that we could ask for. I would treat such a case now entirely with a screen, in order to limit the reaction.

#### CONCLUSIONS

1. Radium has a definite value in the treatment of certain skin conditions.
2. It is easily controlled, and is of accurate dosage.
3. Its application is unattended by pain, and is very pleasing to the patients, especially the young and the very old.
4. The cosmetic results are excellent.

#### REFERENCES

1. Wickham and Degrais: Authors' preface to the French edition.
2. Pusey, W. A.: Radium in Cutaneous Lesions. *Pennsylvania Med. Jour.*, November, 1914, pp. 134-36.
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#### DISCUSSION

DR. G. P. CRUME (Minneapolis): Like the great majority of you, I not only have no radium, but I know very little about it. I am sure, we have enjoyed this paper and the doctor is to be congratulated, especially upon two things: first, upon the elementary character of his paper; and, second, that he relates only his own experiences. It is from such a paper that we get our first clear ideas of this marvelous substance, capable of emitting rays with a velocity comparable to that of light and for a period, not of years, but of centuries, and we learn something of its possibilities in the treatment of disease.

The rays from the salts of radium or radio-active substances are very like those from the x-ray tube. Whether the emanations are identical in substance is not known; but their effect upon normal and diseased tissues appears to be the same. The reactions are certainly very similar. Each one possesses some advantages, due chiefly to the form in which it is used. For example, radium lends itself especially to use in the cavities of the body, as the mouth, rectum, and vagina; or it may be placed in a capillary tube, and inserted into a tumor with a hypodermic needle. The chief objection is, that there is only a very limited quantity available, and the applicators are small, making it very tedious to radiate a large area.

This is the difficulty in treating lupus erythematosus with radium, a disease rebellious to treatment. Personally, I do not doubt that we can achieve as good results with remedies simpler and easier of application.

In the treatment of nevi, radium gives good results, and is especially recommended in the vascular forms, but there is danger of the resultant cicatrices becoming atrophic and telangiectatic after one or two years; and the end-result may be worse than the original condition or nevus for which relief was sought. Although radium is more easily controlled and of more accurate dosage than the x-ray, we should not forget that burns do occur and may be serious.

In the epitheliomata and sarcomata of the skin, the indications for radiation are the same as with the x-ray, and the results are very similar.

DR. G. B. NEW (Rochester): Regarding the treatment of large cavernous angiomas that we see on the face and other parts of the body, especially in children: We believe that the results of the treatment are better if we make a small slit in the tumor, and insert a large radium tube in the mass, instead of using plaques superficially.

Another condition which yields to radium better than to any other treatment is keloid, so frequently seen in the neck and face in children following burns and sometimes following operations. They are found to be greatly benefited by the use of the radium.

DR. R. E. FARR (Minneapolis): I have had no experience with radium, but I have had some experience with the use of the x-ray in treating this class of cases, and have been able to obtain a clinical cure in a number of them; however, the results were usually unsatisfactory.

I saw the case that Dr. Sweitzer reported. While we were figuring upon a method of excision and flap-formation, and were in doubt as to whether or not

it was worth while to try any operation on this old man with extensive carcinoma of the skin, which extended down into the antrum and had taken off a portion of the nose, the patient went to Rochester, and, I believe, made arrangements for an operation. However, he started back for Minneapolis with the expectation of having me perform the operation. While on the train he met a patient that Dr. Sweitzer had treated with radium, and he went to Dr. Sweitzer for treatment. The result in his case left nothing to be desired. It seems to me that in such cases where surgery can hold out very little success, radium should be tried. I feel, however, that in most cases we should not take the treatment that is second best, but should, as Dr. Rodman said last night, where it is possible always excise a malignant growth.

I congratulate Dr. Sweitzer upon the beautiful results in the case that I saw.

DR. J. WARREN LITTLE (Minneapolis): I do not rise to discuss the paper, but to call the attention of the Association to a point that might be of value to some. When a patient is wearing a tracheotomy-tube a long time, we find the granulations are not only around the back of the tube, but in the trachea itself; and in removing the tube the granulations will fill up the trachea, and the patient will find it difficult to breathe. The tube has to be re-inserted. I noticed in the *Annals of Surgery*, the last issue, a discussion which brought out the point that radium can be used here to get rid of the granulations that are in the trachea, also the superficial ones, by applying it externally, and that it is a simple and very effective means. This was applied in Baltimore where they have good facilities for doing this technical work. I do not know how favorable the results have been, but I call your attention to the fact only that in desperate cases radium may be thought of. Perhaps the x-ray would do the same thing, and I believe it does good by producing coagulation in the blood-vessels in the granulations.

DR. E. B. BECKMAN (Rochester): I would like to call the attention of the Association to one point which I think is very apt to be overlooked in the treatment of epithelioma by the x-ray and by radium. We are all perfectly familiar with the wonderful results obtained with radium and the x-ray upon superficial growths, and the x-ray men and the men who use radium are apt to become too enthusiastic about the treatment of carcinoma, and they do not always differentiate between the different types and the different locations upon the body, and they do not differentiate the malignant growths that are suitable for treatment with the x-ray and with radium. There is no question but that epithelioma in the early stages is an absolutely local disease, and as such can be cured in a great many cases with radium and with x-ray. Very often in growths about the eye or upon the cheeks, a great deal better cosmetic results can be obtained with radium than with excision; but it must be remembered that we know very little about the penetrating power of the x-ray and of radium, and that, when a malignant growth is situated in such a position that the adjacent lymphatic glands are subjected to early involvement, although the primary growth may have been entirely healed and may stay healed permanently, yet metastases may occur in the adjacent lymphatics, and for that rea-

son I believe that a great many cases that are being treated with radium are hardly suitable for such treatment. It is a question in my mind whether epithelioma of the lower lip is ever a suitable case for treatment by the x-ray or by radium. I have seen a number of cases of epithelioma of the lower lip that have been entirely healed by the application of x-ray, radium, caustics, and arsenic paste that have later developed metastases in the glands of the neck. While I do not wish to disparage anyone in the use of radium or the x-ray, or any other method which will bring about a good cosmetic result and cure the local lesion, we must be careful not to pin too much faith upon the healing of the local disease and forget that sometimes, and always, if neglected, these cancers become a general disease, as was pointed out last night by Dr. Rodman. Very often the local disease will heal, and metastases will go on just the same; therefore, if radium is to be used for the treatment of cancer of the skin, it must be used in places where metastases do not often occur, but when the disease is situated in a portion of the body where metastasis occurs early, as in epithelioma of the lower lip, then I believe excision, with the removal of the adjacent lymphatic glands, is much the preferable procedure.

DR. H. G. IRVINE (Minneapolis): In regard to the points made by Dr. Beckman concerning excision: It should be taken for granted that in working with radium in dermatology the cases treated are selected ones. I think the experienced dermatologist will not attempt to treat such a case with radium unless the patient has already refused operation. If such a case were operated on, the point I would add would be that after excision either x-ray or radium be used. It is not possible, especially in some locations, to be absolutely sure that the entire tumor is removed. It is possible, if, after excision, x-ray or radium is used, to be more sure that any remnants of cancerous tissue are destroyed. This is true on account of the fact that the rays from x-ray or radium exercise a selective action on the diseased tissue, and it will be destroyed by a dosage which will not harm the normal tissue. I think it is a recognized fact, therefore, that the best treatment, in such a case as Dr. Beckman mentioned, namely, cancer of the lower lip, would be excision followed by radium or x-ray.

DR. SWEITZER (closing): In regard to Dr. Crume's remarks about lupus erythematosus: It is perfectly true. Almost every remedy has been tried. A few years ago CO<sub>2</sub> snow was supposed to be an efficient remedy, but at the present time a great many practitioners have given it up for almost everything in fact. At present Dr. Irvine has a patient on whom I am using radium for a large keloid produced by a man in St. Paul from freezing lupus erythematosus with CO<sub>2</sub> snow, an unusual sequence of the application of the snow. It made her condition worse than it was before she went to him.

In treating lupus erythematosus we try to remember that the disease sometimes heals itself; that the disease should not be treated with remedies that will give a poorer cosmetic result than the condition for which the patient came. X-ray treatment used for lupus erythematosus usually produces a condition that is worse than what the patient had in the beginning, and medi-

cal treatment is very, very slow. I have tried it for years, and, I believe, Dr. Crume has. At the present time, we are trying out a new treatment with the Kromayer lamp for this obstinate disease, because we believe it is much quicker than radium, and in this lupus erythematosus case extensive surfaces are involved.

In regard to Dr. Beckman's remarks about the selec-

tion of cases, I always try to select my cases very carefully. I do not want to treat cases that are liable to metastasize, although I have recently seen a case of epithelioma of the upper lip for which a surgeon in his anxiety to prevent a recurrence did a removal of the glands in the neck. Sometimes the surgeons get twisted in their anatomy.

## A SINGLE EXAMINATION FOR THOSE WHO TREAT THE SICK\*

BY H. E. FRENCH, M. D.

Dean of the Medical Department of the University of North Dakota  
UNIVERSITY, NORTH DAKOTA

The subject of the control of medical licensure is almost perennial. Last winter our Legislature created a new board, and gave legal recognition to another of the drugless sects, giving North Dakota four boards of this kind, counting that for optometry. At the time this was going on in North Dakota an effort was being made in Kansas to establish a single board to judge more particularly of pre-medical or pre-professional training, and to harmonize the several existing boards in that state; and at the annual meeting called by certain Councils of the American Medical Association in February, a tentative model-practice-act, drawn up by the Medicolegal Bureau, was submitted as one of the questions for discussion. No doubt the idea of a single board to establish the qualifications of all who attempt to diagnose disease and to give treatments of any kind for compensation, has occurred to all of us and to all thoughtful, educated men of whatever occupation. The effort of Governor Hodge of Kansas indicates the awakening interest of the intelligent laity. The American Medical Association, which has done so much to standardize medical education, to expose shams and frauds in medicine, to secure proper health legislation, and to teach to all the great lessons of health and sanitation, has taken the subject up for investigation. We shall probably hear more of it as time goes on. I have, therefore, attempted to collect a few facts and ideas for your consideration at this time.

The constitutional right of a State to enact laws on this subject as a part of its police power in caring for the public health, has long been recognized and often affirmed. Mr. Justice Brewer of the U. S. Supreme Court (188 U. S. 505; 47 L. ed. 563, 23 Sup. Ct. Rep. 390), said in an opinion for the Court:

The power of a State to make reasonable provisions for determining the qualifications of those engaging in the practice of medicine, and punishing those who attempt to engage therein, in defiance of such statutory provisions, is not open to question.

And Mr. Justice Field (129 U. S. 114; 32 L. ed. 623, 9 Sup. Ct. Rep. 231), after discussing considerations as above, and, in fact, cited by Justice Brewer, said:

Few professions require more careful preparation by one who seeks it than that of medicine. It has to deal with all the subtle and mysterious influences upon which health and life depend, and requires, not only a knowledge of the properties of vegetable and mineral substances, but of the human body in all its complicated parts and their relation to each other, as well as their influence upon the mind. The physician must be able to detect readily the presence of disease, and prescribe appropriate remedies for its removal. Everyone may have occasion to consult him, but comparatively few can judge of the qualifications of learning and skill which he possesses. Reliance must be placed upon the assurance given by his license, issued by an authority competent to judge in that respect, that he possesses the requisite qualifications. Due consideration, therefore, for the protection of society may well induce the State to exclude from practice those who have not such a license, or who are found, upon examination, not to be fully qualified.

It is perhaps needless to point out that such reasoning applies to any attempt at diagnosis and to any system of treatment, no matter whether medicine be taken in its narrow sense as a drug or as a substance possessing certain curative powers, as a branch of the work of the profession as distinct from surgery and obstetrics, or in its broader sense, the healing art, the science of the preservation of health, and of treating disease for the purpose of cure.

The reasonableness and the desirability of such laws should appeal to all, and, I believe, they do appeal to most thoughtful people and will do so more and more. That there should be sects in medicine any more than in chemistry or botany

\*Read at the 34th annual meeting of the North Dakota State Medical Association at Bismarck, N. D., May 12 and 13, 1915.



is anomalous. Men may differ in their abilities, and in their experiences, preferences and theories; but the basic facts must be the same. That there should be different standards to qualify different men before the law to do the same things is unfair, and, I believe, will some day be recognized as unconstitutional. It is needless to argue that certain ills cannot be made worse and may be benefited by certain forms of irregular treatment. This would probably be granted by all; but the disciples of the various cults often boastfully advertise their ability to diagnose and to treat all kinds of disease; and people, even children, suffering from any disease and surely not able to make their own diagnosis, are likely to go or to be taken to them.

In the same way it is useless to argue that, since some drugs are dangerous and some surgical operations serious, because these people do not give drugs or perform cutting operations, therefore, they can do no hurt, and ought to be licensed. All will concede that most cases of acute illness will get well if left alone or with any treatment that is not positively harmful; and that many cases of chronic illness will continue and even improve in the same way. Psychology has many peculiar cases of cure to account for. But to concede these things is not to say that anything not harmful is good enough. Everyone has an opportunity to know, and should know, of the progress of scientific medicines, for example, the reduced death-rates from tuberculosis, typhoid, and diphtheria even in the last ten years. Unless a practitioner, no matter what his system, is reasonably trained, there is more than ordinary danger that the correct diagnosis will not be made. If this be so the question of treatment need not be considered at all. Moreover, unless the practitioner is reasonably skilled and equipped, there is more danger that he will let the opportune time for giving diphtheria antitoxin or for draining pus go by, than that he will do harm by giving a hurtful drug. The chief objection to practice of any kind by those who are not well prepared is the danger that the condition of those going to or taken to them may not be benefited, may be made worse, or may be neglected until a proper treatment is unavailing. Other objections are that it takes money from people for what is likely to be worthless or even dangerous treatment; that it stands in the way of enlightenment and progress; and that it interferes with the proper development of public-health work. The only reason for regulation of

practice, again let it be said, is the welfare of the public, not the protection of the doctor at all.

I know of no place in the world where exactly the right laws exist, or, if they do exist, where they are properly enforced. In the same way the literature of every age is full of references to superstition and quackery related to medicine. We read of Hippocrates that he was one of the first whose teachings and writings were "free from the mysticisms of the priesthood and the vulgar pretensions of a mercenary craft." And Shakespeare has many allusions, such as that of the Royal Touch (*Macbeth* IV, 3) and the night gathering of "enchanted herbs" (*Merchant of Venice* V, 1).

In Europe the laws are definitive only, that is, they specify the qualifications of those who may assume such titles as doctor, physician, M. D., etc., but are weak in the matter of restricting practice to those who are properly trained; in particular is this true of Germany and Great Britain. In these countries there is practically one requirement; all who wish to qualify must pass the same test. After receiving his license a doctor may use such practice as he deems best. Sectarianism, such as has existed in America, is almost unknown. But nature healers and devotees of occultism, electricity, etc., are very numerous. Most of them are uneducated and the ranks are renewed from small farmers, weavers, barbers, teachers, priests, nurses, domestics, etc. Flexner in "Medical Education in Europe," p. 312, quotes an estimate that perhaps one-fourth of the irregular practitioners in Germany have progressed as far as the gymnasium, and that perhaps one out of one hundred of the female contingent has a fair education. On the next page he quotes an estimate that one-third of the practice of the entire German Empire is in the hands of quacks. The condition is said to be as bad in England; and while France and Austria have better laws, the laws are not properly enforced.

In the United States, in the earlier days, medical education and medical requirements can best be described as chaotic. There were in the profession many good men, many poor men, and many charlatans and quacks. It was easy for the poorly trained man to qualify. Rallying from this condition about fifty years ago, due to the efforts of the profession and the American Medical Association, we have been making and re-making laws that create boards and attempt to regulate practice. The efforts in this country

have been characterized by several particular features:

1. Unlike the legislation of Germany and Great Britain, and wisely too, I think, we have always tried to establish restrictive laws, that is, laws restricting practice to a qualified class.

2. Again, unlike the legislation of Continental Europe, at least, we started with very low standards,—a necessary thing at the time, no doubt.

3. At the same time we began to establish boards for the sects and cults—at first, for the homeopaths and the eclectics, later for the osteopaths, optometrists, neuropaths, and chiropractics. The European countries do not have such laws; but with definitive regulations only there could hardly be any demand for them. Germany now requires irregular healers to be registered.

4. While attempting to regulate practice, it has not been until recently that we have paid any attention to patent medicines and the promoters of patent and proprietary remedies. In this respect we have not been unlike Europe; in fact, we are probably ahead today; but this does not belong to our discussion.

The most anomalous and unfortunate feature of American legislation has been the creation of many boards; but it has been done, and we are not yet entirely over the tendency. The reasons for this action have been many. On the part of the profession it might be pointed out that the requirements have been low until very recently; that there has often been a certain lack of harmony; and that the profession has not always kept clearly in mind that legislation should never be sought or thought of for the protection of the doctors, but for the protection of society. On the part of the laity may be mentioned (1) the many states and the rapidly growing and changing country; (2) a lack of the desirable confidence that we of course feel that the profession deserves and that is necessary if scientific medicine is to perform its best service for society—a lack for which we of the profession are only partly responsible, but of which we must take due notice; (3) a failure to understand the mind of the profession in this as well as in all kinds of health legislation (it has been said that while scientific medicine has made more progress in the last century than in all previous centuries combined, it has perhaps been less successful in this century than in any other in keeping the confidence of the average untrained and not very thoughtful layman; this, again, is not entirely the fault of the profession, but it indicates a condi-

tion of which we must take notice); (+) a willingness to grant class legislation in spite of theories to the contrary—a willingness to listen to the plea to give everybody a show, even when it contains a fallacy,—a willingness to listen to the argument that the doctors have a law for their protection (again a fallacy), therefore this sect or cult should have a law for its protection; (5) simply the political strength of the demand organized by the interested parties.

From the standpoint of scientific medicine that has made all of our progress, that is interested in research, that is anxious to know the truth wherever it may be found in therapeutics, as well as in everything else—from the standpoint of scientific medicine, which must and does look only to the best interests of society, it would seem that there should be in each necessary political division or state one, and only one, licensing board consisting of a convenient number, perhaps seven or nine, properly qualified representative men. We cannot see why all who attempt to diagnose or treat in any way any physical ailment of another for compensation, except dentists and chiropodists, whose fields are strictly limited, should not qualify by the same standards, of both premedical and professional training. To begin to recognize sects at all is wrong in principle; it invites further recognition in the same direction, and it is unfair to both practitioners and society. It would seem that the law should be restrictive, as well as definitive; and it would seem, further, that all thoughtful men in every walk of life could agree to the proposition; I think that as time goes on they will more and more do so.

Ideal conditions do not obtain, however, and an ideal law is not to be expected at present. Only in such an organization as the United States Public Health Service and in such a place and time as Panama in the last ten years, can we hope to see proper standards all along the line for some time. But what are the tendencies and what are the prospects for the examining board in the various states?

In only seven states and the District of Columbia are there still separate boards for licensing graduates in medicine. Three states,—Delaware, Louisiana, and Maryland,—have two boards, one for regulars and one for homeopaths. Four states,—Arkansas, Connecticut, Florida, and New Hampshire,—and the District of Columbia have three boards, one each for regulars, homeopaths, and eclectics. In all of the other states and territories the old separate boards have given place to

single boards, or single boards have existed from the start. In a few states, like Missouri and New York, nothing is said about schools or sects in the articles defining the board, but there can be no doubt that full recognition of the various schools is accorded by the governor, or the body exercising the appointive power. In most of the states, however, it is clearly specified that such and such proportion shall be from each school, as that three must be homeopaths in Minnesota and two in North Dakota; five must be regulars; three eclectics and two homeopaths in Georgia; five regulars, two homeopaths, two eclectics, and one physiomedical in Michigan; or that the board must represent the different schools as in Ohio,\* Texas, and Idaho; California provides that a member of the board must hold a license issued "under any of the medical practice acts of the State." The tendency toward union or toward a single board is something that, I am sure, we are all glad to see. From the standpoint of scientific medicine, we should prefer to see no mention of schools in the statutes, but we gladly concede that point, and the point of a separate examination in materia medica and therapeutics, as in some states, or an omission of these subjects from the list entirely, as in other states, in order to have the single board and the uniform standard in other particulars.

In the same way there is a tendency to provide for osteopathy on the single board. In at least one state, New York, where there are no specifications in the law for representation of different schools, there is an osteopath on the board. The osteopaths are represented on the boards of California and Texas, where the laws speak of schools without mentioning any, and in eight other states,—Arizona, Indiana, Kentucky, Oregon, Oklahoma, Virginia, Washington, and Wisconsin,—the laws provide that there be one or two osteopaths, as well as a proportion of regulars, homeopaths, etc. In Ohio and in Porto Rico there are no provisions for osteopathic representation, and there seems to be none at present; but there is nothing in the acts to prevent such representation. In these states also the osteopaths take part of the same examinations as others. There are thus twelve states and the territory of Porto Rico in which there are single boards for physicians and

osteopaths, one of them, Arizona, even going a step further and logically, but perhaps not wisely, providing for the future by having a board that is authorized to license practitioners of "other systems." Again, regular physicians and other thoughtful men will generally concede the point of osteopathic representation, since the tendency of legislation is still to give recognition to cults; but physicians must insist that it is only right that all should possess the same premedical or pre-professional qualifications, as in Indiana, and that it is unfair to physicians and unsafe for society to have one standard for physicians and a lower standard for osteopaths, as in Arizona, California, and Washington. With this point granted, physicians would again concede that there might be a difference in the standards of length of professional training,—four or five years for the one, three years for the other,—if osteopaths are not to prescribe drugs or do major surgery. A difficulty, however, as has been pointed out before, is that with the recognition of sects and cults at all there is a constant demand for the recognition of still others; and the problem from the point of view of legislation and the courts becomes more complicated. In Washington, with a single board giving recognition to the osteopaths, there was presented to the Legislature last winter an initiative petition signed by 38,533 persons, praying for a separate chiropractic board; and New York, Wisconsin, and other states are having similar trouble.

The bill proposed by Governor Hodge of Kansas, after much study by himself and by a worthy committee (the bill did not pass), a similar bill, that, I think, did pass in Tennessee, and the tentative bill drafted by the Medicolegal Bureau of the American Medical Association, may be briefly summarized thus:

A board of seven, four of whom are ex-officio members,—the Superintendent of Public Instruction, the President of the State University, the President of the State Agricultural College, and the President of the Normal School,—and three of whom are appointive members. A permanent secretary, not of its number, to be chosen by the board; examining committees of five each, chosen by the board and representing the adherents of every system of treatment recognized by the State or hereafter recognized by the board. The board to determine the standard of premedical training, and pass upon the qualifications of each applicant, to judge of the standing of professional schools, to supervise the professional ex-

\*Since the above was written a new law has gone into effect in Ohio. It wisely provides for a single board, but it seems to reach a climax of absurdity when it specifies fourteen different cults or forms of practice, and provides for still others with the phrase "any other similar branch of medicine and surgery that may now or hereafter exist and not here specified." *Jour. A. M. A.*, Nov. 20, 1915, pages 1825 and 1838.



aminations, to issue licenses, to provide for reciprocity, and to perform such other duties and have such other powers as usually pertain to boards. The bills provide that physicians, osteopaths, and chiropractics must have spent four years in a reputable professional school, and that the board may determine the standards for optometrists, chiropodists, and midwives. It might also be said that the plan is modeled somewhat after the powers and duties of the so-called Regents of the University of the State of New York and the Bureau of Professional Education of Pennsylvania.

No one, I suppose, would argue that the bills are ideal. Their purpose and certain advantages, however, are evident. The best feature of it all is that thoughtful laymen, as well as members of the medical profession, are beginning to realize that society is vitally interested in the qualifications of those who practice medicine, and that the question of licensure is one of education and training. The plan would no doubt meet with much opposition anywhere. Of course the way would be open for the licensing of the followers of any system, but they would have to make their case good before as competent a board as could well be provided. Many medical men would object to being classed in any way with the followers of sectarian medicine. They feel that the public ought to know, and does know, what scientific medicine means, and that the public is therefore able to distinguish between the properly prepared and the poorly prepared man, often in spite of boasted claims of the latter and of his legal standing,—a little too optimistic a view, I fear. Again, physicians would oppose it if it meant the loss of any ground already gained in standards; for example, in North Dakota a two-year premedical standard is required and the A. M. A. standard for professional schools. All would object to any plan that would mean the lowering of this for our profession, even though it should mean a fairly uniform standard for all. But the plan would not necessarily lower any standards. The drugless sects would probably oppose the plan for exactly the opposite reason, that the standards would probably be too rigid and too high. Then again, it is a question how well such a board would work. With the pace set in the ex-officio members it would seem that a highly competent board could be expected where good ideas and clear judgment would prevail. But with a board consisting of very busy men,

largely perhaps entirely laymen, upon whom this function might be thrust, could we be assured that the members would properly inform themselves upon the questions of medical education, and could we be assured that they would look carefully to the examinations, either premedical or professional? Much would no doubt depend upon the secretary of the board and the many details of the law. New York, with a splendidly organized department under its Board of Regents, which passes upon both schools and applicants, seems to have quite as much trouble with unlicensed practitioners as other states. Time will not permit nor is it necessary to give further discussion of the plan.

For us in North Dakota with a good standard set in medicine, an ideal standard, which eight other states have also adopted, and toward which many states are on the way; with the dentists beginning to talk of a pre-dental college requirement, and with the Law School of the University going onto a two-year entrance basis, might it not be possible and worth while, without disturbing present legislation very much, to work for a general two-year pre-professional standard and for a board to pass upon the pre-professional qualifications of all who desire to qualify for medicine, dentistry, or law? Such a plan would relieve the present boards of a lot of work that is at times difficult for them to do, and would establish a fair and desirable standard for all. The pre-professional standard should apply to all who attempt in any way to diagnose or treat any ailment of another for a fee, with the exception of chiropodists and midwives, should the state ever license the latter. It should not apply to nursing, pharmacy, embalming, and other semi-professional activities; and the board might or might not have any relation to the qualifications for these occupations. The board in so small a state would come nearest to having the desired efficiency if it were constituted along some such lines as those suggested by the Kansas bill.

#### DISCUSSION

DR. GEORGE M. WILLIAMSON (Grand Forks): My discussion will necessarily be short on account of the number of papers to follow this afternoon. This is a big subject, and one that I do not feel fully qualified to discuss, although I have given a good deal of attention and thought to medical legislation and medical examining-boards. The profession and the public should be taught to feel and to know that medicine is truly a science at the present time, just as chemistry is a science. Feeling as I do on this matter, that

medicine is a science, I cannot bring myself to believe or think that it would be right for us to recognize or countenance any of the cults, or sectarian medicine in any way. The objection to those people, those who are practicing sectarian medicine and following cults, is purely, I think, on the educational standard. If we could get the public to believe that our opposition to sectarian medicine is not on account of what they practice, but on account of the low educational standard on which they receive the right to practice, we should be going a long way towards solving the problem. I think one of the mistakes we have made in the past is when going before the legislature we have created the impression that we were trying to put these fellows out of business. That is not the object, because it seems too much like arguing along the line that the practice of medicine was on the line of trade-unionism. We have forgotten to impress upon them that it is a matter of education. It does not matter what line of practice a person follows, if he is educated, so that he knows exactly what he is doing. There is nothing in our medical-practice act under which we are working that says a man must not follow or practice any line of treatment he sees fit. We have no examination in therapeutics. We left that out of the law purposely in order to avoid any controversy with the homeopaths, and thought we might satisfy the osteopaths; but a few fellows calling themselves homeopaths immediately made objection, and demanded that they must have the same recognition they had before under the old act, that is, two members on the board of medical examiners. When we have no examination in therapeutics there is no necessity for homeopaths or eclectics or any other sect on the board. They can practice what system they see fit. Dean French put the matter, I believe, in a nut-shell. In his paper he proposed a plan in which I fully concur, and I believe it would be the right thing for us to begin to advocate it now. The

plan is to have a board appointed that would pass upon the credentials of all those who wish to enter the practice of law, dentistry, or medicine. That would relieve the different boards of passing on the preliminary requirements of any candidate who should apply for a license. Of course, we should receive opposition from the irregulars to that plan, because they require very little if any preliminary education before they begin the study of their profession. I believe we could strike our medical-practice act off the books entirely if we had a law requiring every person who wanted to treat the sick to have two years college work before he began to study diseases of the human system and their treatment, because no person who has had two years college work, unless he is a fakir, pure and simple, will go into sectarian medicine. I believe that is the plan we should follow,—demand the same educational standard for everybody; allow no person to come in through the back door or creep in under the door. If a person is going to treat the sick, and the same rights and privileges are accorded the osteopath and chiropractor as we have, they should come up to the same educational standard. It has occurred to me that I would like to have the court's opinion on the law creating the osteopathic and the chiropractic boards of examiners. I believe both the osteopathic law and the chiropractic law could be annulled. It is class legislation, pure and simple; it is setting one standard for scientific medicine and allowing the other fellows to come along and have the same rights and privileges that we have without coming up to the same standard. It does not seem to be right, and I don't believe the courts will hold it valid. I hope to see it tried some time in the near future.

I wish to emphasize again the fact that I would be very much opposed to those who are following scientific medicine in any way connecting themselves with pseudo-scientific cults in any manner whatsoever.

## CLINICAL OBSERVATIONS ON LUEPIC DISEASE OF THE HEART AND AORTA\*

By ROBERT D. MUSSEY, M. D.

Mayo Clinic

ROCHESTER, MINNESOTA

Luepic disease of the heart and aorta has been brought into prominence within the last five years by the Wassermann test in conjunction with the radiographic and fluoroscopic findings.

I shall not attempt to discuss the abundance of valuable literature on this subject, but shall merely recount some of the observations made on patients as they have presented themselves at our clinic: (1) as to their principal symptoms, (2) as to the most commonly found and pronounced physical findings, and (3) as to the results obtained by treatment. No effort has been made to

follow-out the experimental or pathological aspects of the conditions.

Of 1,379 patients with syphilis examined during the five years ending January 1, 1915, there were 59 with diseases of the heart, aorta, and mediastinum which were attributed to the specific disease, and 14 in whom cardiac lesions were noticeable, but of secondary importance. Only cases in which a definite diagnosis could be made are included in this report, and a number have been discarded because the history and findings were not sufficiently clear-cut for the purpose of tabulation. A large number of very early cases in this way are possibly not included.

In 53 of the 59 cases there were positive Was-

\*Read at the 47th annual meeting of the Minnesota State Medical Association, at Rochester, September 30 and October 1, 1915.

sermann reactions, a majority with total inhibition; and in the remaining 6 there were positive histories of syphilis. In connection with this incidence it is of interest that many of the patients as they presented themselves were past the secondary stage. Other infections may have played a part, yet only 4 patients had had scarlet fever, 4 typhoid fever, 3 chronic and 2 acute rheumatism, and 2 gave a history of attacks of tonsillitis. Fifty of the patients were men, and 9 were women. The oldest was 67, the youngest 27; and the average age was 47 years.

For the purpose of contrast, the cases have been divided into three groups. It was found that the symptom-complex and the physical findings of these three groups were rather sharply drawn; and since it seemed that a comparison of them in each group might be of diagnostic value a tabulation has been made.

#### GROUP I.—CARDIAC AND MEDIASTINAL, 16 CASES—SYMPTOMS

Of this group 15 patients complained chiefly of dyspnea, 5 needing extra pillows when reclining. The same number complained of pain, which was described as dull, sore, sticking or catchy, usually in the chest, but in two cases it was noted in the abdomen. Other of the prominent symptoms were dizziness, congestion of the face, and gastric disorders. In 3 there was a history of edema. The longest duration of symptoms was twelve years, the shortest two months; average, twenty-one months.

#### GROUP II.—AORTITIS, 18 CASES—SYMPTOMS

No special symptoms were prominent in this group. Pain, dyspnea, cardiac, and gastric disorders and weakness were most frequently mentioned. One patient complained of gas, 1 of urinary trouble, and 1 of staggering. Pain was noted in 12 cases; a history of edema in 3. Two patients were so dyspneic as to be unable to lie flat. The longest duration of symptoms was six years, the shortest two months; average, two and one-half years. In 11 cases the illness was constant; in 9, worse at times.

#### GROUP III.—ANEURYSM, 25 CASES—SYMPTOMS

Pain was noted as the predominant complaint in 15 of these patients, and was present in all but 1. It was mostly precordial in 14 patients; down the left or right arm in others; to the back in 18, being described as dull, severe, progressive, or gripping; taking the breath in 1, nocturnal in

3, anginal in 1. Among other symptoms were abdominal disturbance in 2; swelling (aneurysmal mass) in 6; cough in 4; pressure, weakness, or dyspnea alone in 3. Three patients gave a history of edema. Four needed pillows, 2 because of pain and 2 because of dyspnea. The longest duration of symptoms was twelve years, the shortest three months; average, six years and eight months. In 23 of the 25 the complaint was constant, in 11 worse in spells.

*General Symptomatology in the Series.*—In 24 of the total 59 cases comprising the series, pain was increased by exertion. In the cardiac and aortitis groups the incidence of gastric trouble is of interest, occurring eleven times in each 16 and 18 cases, while only seven times in the group of aneurysms (25 cases). In 24 the food-intake increased the complaint. A history of gas, pressure, and epigastric pain may be of great value in the differential diagnosis of this group of cases from upper abdominal lesions, especially of gall-bladder disease.

It must be remembered that there may be coincident aortic and abdominal trouble. This was manifested in our series by one of the patients who later had a resection of the pyloric end of the stomach for ulcer. The chief complaint may be misleading, and the diagnosis may be missed without a careful history and examination. Examples of such misleading symptoms are chills, malaise, dizziness, "staggering and paralysis," nervousness and burning, and frequent urination.

In this entire series it may be noted that the majority of the patients were ambulatory. Those of the cardiac group showed most disability, and those of the aneurysmal least. (Six in the first group, 2 in the second, and 1 in the third had edema at the time of examination.) Dyspnea and edema in the cardiac, dyspnea in the aortitis and pain in the aneurysmal group were the greatest symptomatic factors in the production of the disability.

*Group I. Cardiac and Mediastinal—Physical Findings.*—The prominent findings in this group were irregularity of the pulse and a tendency to tachycardia, the average rate being 98. In only 2 was the pulse noted as normal. Six had edema at the time of examination. Venous pulsation in the neck occurred in 4 cases. Valvular murmurs were found in all but 6, the predominant being a systolic at the apex, with a systolic murmur at aortic area next in frequency. Cardiac dullness was normal in 4 cases, in 1 of which it was due to pulmonary emphysema; increased to the left in



10 and markedly so (a three-inch or more dilatation and hypertrophy) in 7, and to the right, also, in 6 more. A broadening of the mediastinal dullness was found in 3 only. Radiographs which were taken in 7 of the 11 cardiac cases showed cardiac enlargement, and in 2 of these a mediastinal shadow. The two had predominant cardiac symptoms. In all 5 mediastinal cases a well-defined shadow was shown. Irregularity of the pulse, broadening of the cardiac or mediastinal dullness, and the radiographic evidence were the most important findings in this group.

It is of interest to note that in the majority of cardiac cases there was evidence of nephritis, in most instances of rather severe grade, and that this was not true in the other groups.

*Group II. Aortitis—Physical Findings.*—In this group irregularity of pulse was observed once only while the water-hammer was noted seven times in the 18 cases. The average pulse-rate was 87. A thrill over the aortic area or carotid was noted in 7 cases. In all but one of these there was definite evidence of cardiac hypertrophy to the left, in 14 not over a two-inch increase. Increase to the right occurred in 7, and a broadened aortic dullness in 8. The radiogram showed the heart enlarged in 14 cases and the aorta in 7. The relative cardiac enlargement was less marked than in the purely cardiac cases. A to-and-fro aortic murmur occurred in 12 cases, being purely diastolic aortic in only 3. The systolic murmurs were transmitted mainly to neck and shoulders, the diastolic to the apex, over the chest, up the sternum, or to the ensiform. The main features, then, were the aortic insufficiency with systolic and diastolic aortic murmurs and its accompanying water-hammer type of pulse.

*Group III. Aneurysmal—Physical Findings.*—The main features noted were heaving of the chest in 21; thrill in 7; tracheal tug in 6; slight cardiac enlargement in 11; and broadened aortic dullness in 11. The fluoroscope and Röntgen ray showed increase in the size of the aorta in 22, of the heart in 4; and pulmonary congestion in 1. In these cases there was an absence of bruits in only 3. The systolic aortic murmur was the most common, although murmurs were heard all over the valvular areas. Vocal-cord paralysis was a valuable finding.

In the comparison of the three groups the blood-pressure was of value, both from a diagnostic and prognostic standpoint. See Table I for the highest, lowest, and average of the systolic, diastolic, and pulse-pressure.

TABLE I

BLOOD PRESSURE.	Systolic.			Diastolic.			Pulse-Pressure.		
	Highest	Lowest	Average	Highest	Lowest	Average	Highest	Lowest	Average
<b>GROUP I</b> Sixteen cases Heart and mediastinum	198	100	147	148	60	98	108	15	44
<b>GROUP II</b> Eighteen cases Aortitis	230	120	153	110	...	61	120	20	97
<b>GROUP III</b> Twenty-five cases aneurysm	210	75	R-123 L-141	100	60	76	110	17	52

It will be noted that in Groups I and II the systolic pressure averages higher than in Group III. In the aneurysmal group the blood-pressures in the arms were unequal and were difficult to take. It is noteworthy that the systolic on the left ran ahead of the right. In Group I we find a higher average diastolic pressure, which is of interest in view of the nephritic findings. These cases presented correspondingly graver clinical pictures. The average low diastolic pressure and high pulse-pressure in Group II suggested an aortic insufficiency, which was fairly well compensated.

While a high diastolic was generally found to have bad prognostic significance, one patient who had a systolic blood-pressure of 165 and a diastolic pressure of 146, reported one year later that she was better. Another with pulse-pressure on the right of 108 and on the left of 10, reports he is feeling entirely well and is doing manual labor.

*Treatment.*—Much has been written on the various methods of treatment. Most of our patients, especially in the aneurysmal group, were not treated in our Clinic; and therefore observations on the relative value of various measures have not been extensive. We have, however, followed certain general lines which seemed best for patients who remained for a time at the Clinic. These may be classified as (1) rest, (2) cardiac medication, (3) potassium iodid and mercury, and (4) salvarsan and neosalvarsan.

Especially in the cardiac and cases of aortitis rest was found to be the most important factor with such cardiac medication as seemed indicated. As soon as the most aggravated symptoms were in abeyance, mercury rubs were used in conjunction with potassium iodid in increasing doses by mouth. The use of intramuscular injections of mercury salicylate in at least two cases increased the distress and dyspnea, and its use was discontinued. Heavy doses of mercury given

within a short time seemed to cause a reaction, possibly of local swelling, which increased the discomfort. The physician of one patient reported improvement with the use of protiodid of mercury by mouth. In 17 of the later cases salvarsan or neosalvarsan, or both, were used without any apparent bad result and frequently with noticeable lessening of the discomfort. When the patient was quite sick, iodid of potassium and mercury rubs were always used before salvarsan was employed. In the later cases neosalvarsan was used in small doses in preference to the salvarsan. To our direct knowledge 34 of these patients received mercury or salvarsan or both, and 32 were given potassium iodid. Many of the remainder were given antisppecific medication by their physicians at home. All those treated in our Clinic received antisppecific treatment except one patient who died. His trouble had lasted but two months, and was so severe that, in spite of a total inhibition Wassermann, mercury was not used. An autopsy was not obtained in this case; and we were unable to determine whether there might have been some other causative factor aside from the syphilis.

A tabulation has been made of the patients treated at the Clinic, and followed by letters of inquiry.

TABLE II

Statement from Patient	Group I (16 cases) Heart and Mediastinum	Group II (18 cases) Aortitis	Group III (25 cases) Aneurysm
Alive 4 years....	1	.....	1
Alive 3 years....	1	.....	2
Alive 2 years....	3	1	3
Alive 1 year....	4	5	2
Feeling well....	2 or 12.5 %	1 or 5.5 %	3 or 12 %
Feeling better....	5 or 31.25 %	5 or 27.7 %	3 or 12 %
Feeling same....	.....	.....	2 or 8 %
Feeling worse....	1 or 6.25 %	.....	.....
Dead and not heard from....	8 or 50 %	12 or 66.6 %	17 or 68 %

Eight of the patients in the cardiac group improved; 1 died. Three were worse while under observation. Two of those who improved returned later much worse, and died. In replies to letters from the remaining 13, 5 were better, 2 were feeling well, 1 was worse, and 4 had died; 1 was not heard from, and is probably dead.

Of the aortic patients, 10 were treated at the Clinic and all improved, 7 quite markedly. One returned and died, and 1 died later after a resection of the pyloric end of the stomach for ulcer. Letters from the remaining 16 showed that 1 was feeling well, 5 were better, and 6 had died; 4 were not heard from.

Nine of the 25 aneurysmal patients were

treated in the Clinic. Improvement was noted in 6; 1 died. Replies to letters sent to the remaining 24 stated that 3 were feeling well, 3 were better, 2 the same, and 5 had died; 11 were not heard from. From recent reports it was learned that of these, 2 who had definite bulging, heaving masses reported after two years that they are feeling quite well although the masses have not disappeared; the other, who had an aneurysmal dilatation of the descending aorta as shown by the Röntgen ray, feels well and is doing regular farm work.

The ratios in Groups II and III are peculiar in that three patients of Group III and only one of Group II are feeling well. Of Group I, 50 per cent are alive, as against 33.2 per cent in Group II and 30 per cent in Group III.

## SUMMARY

1. In 1,379 cases of syphilis, clear-cut syphilitic disease of the heart or aorta occurred in 59 (4.29 per cent).

2. The aorta seems to be affected by syphilis more frequently than the heart.

3. Syphilis of the heart does not present a typical syndrome other than that of myocardial change. The positive Wassermann is almost necessary for a definite diagnosis.

4. Syphilis of the heart, while presenting graver immediate symptoms, responds more readily to treatment, and the benefit is more lasting than in syphilis of the aorta.

5. Syphilis of the mediastinum presents a clinical history similar to that of cardiac syphilis, and also shows a similar benefit from treatment.

6. The use of potassium iodid with mercury is of value, even when the patient is showing marked evidence of decompensation.

7. The use of the iodids and mercury in some cases seems of value preceding the use of salvarsan.

8. Salvarsan, and especially neosalvarsan, is of considerable value in syphilis of the heart and aorta, and can be used in small doses even in severe cases.

9. The use of vigorous and persistent antisppecific treatment will relieve the discomfort, and apparently arrest the progress of certain aneurysmal cases.

## DISCUSSION

DR. E. L. TUOHY (Duluth): In the group of cases that we brought forward in our paper, there were twelve classed as cardiovascular. In that group, in three cases we made a diagnosis of mesaortitis luetica.

There were three cases of myocarditis; there were six cases of aortic aneurysm, and three cases which had syphilis also had valvular lesions due to syphilis.

I can bear testimony to what Dr. White has just said, and also what Dr. Mussey has said, although I have not observed dizziness. In any individual, without any demonstrable change in his heart and heart-outline or heart-valves, in whom you can find no other cause for dyspnea or other etiological attacks of palpitation, who has substernal pain, look out for syphilis, and these cases will, as a rule, get better promptly under anti-specific treatment. In many cases of aneurysm preceded by mesaortitis, the patient can be cured, and a potential aneurysm avoided by early treatment. In aortic aneurysm unassociated with incompetency of the aortic valve, it is better than where this occurs. Where you have a cardiac condition of aneurysm and also incompetence of the aortic valve, this serious lesion also adds its insult. Any middle-aged individual who develops *de novo* aortic insufficiency, is probably syphilitic, because these cases of aortic insufficiency that are due to rheumatism are invariably associated with a mitral lesion, with a history of rheumatism and chorea in early life, and the lesion has been present for a long time. That rule has led me to a proper interpretation of two cases. A man had ocular disturbance with paralysis of some of the eye muscles; another came under observation in whom aortic insufficiency developed while he was under observation, and fairly intensive antispecific treatment. Incidentally, he also had an hour-glass stomach. I have also observed aortic incompetence develop in a case of tabes while under observation. I observed a young woman with a cardiac condition—a striking thrill over the upper left chest—and the Röntgen findings characteristic of pulmonary stenosis. She had a positive Wassermann; and it could be demonstrated to our satisfaction that she had hereditary syphilis. Treatment had no effect, naturally, upon this heart lesion. It is doubtful whether syphilis ever causes crippling of the valves, although certain instances of mitral stenosis have been attributed to it.

DR. S. MARX WHITE (Minneapolis): Recognition of the importance of syphilis as a cause for disease of the heart and aorta is growing year after year with the more nearly routine and wider use of the Wassermann test. Through this test we have a means of checking up a large number of obscure conditions that reach us and for which we fail by other means to get an adequate explanation. Since the Wassermann reaction has given us further insight into the nature of many obscure conditions, as Dr. Tuohy has so well brought out, the recognition of syphilis has become important in connection, not only with aneurysm, but also with a much earlier stage of the same process. That is, syphilitic aortitis, and in disease of the valves and particularly the muscular wall of the heart.

Dr. Mussey spoke of certain symptoms which were prominent in the cardiac and mediastinal group, and I have learned to look upon certain of these symptoms as distinctly suggestive. The combination of dyspnea, mediastinal pain, and dizziness coming on at first in attacks of short duration, and later more constant, is common. I have noted repeatedly in syphilitic aortitis paroxysms of dizziness, sometimes with thoracic pain, which might be described in some cases as precordial and in others as retrosternal. This dizziness will come

on under the most varying circumstances, and often seems to have no relation to effort. I have seen it occur particularly after excitement or mental strain. One patient would awaken at night with a pronounced sense of dizziness, with dyspnea, and, sometimes but not always, with retrosternal pain. The attacks seemed to be entirely independent of any factor, such as strain or effort, and I could find no adequate explanation in either signs of cardiac decompensation or of increased intrathoracic pressure.

The importance of the groups of aortitis and aneurysm is very great, and we are learning to look upon every case of lesion of the aorta and aortic valves with considerable suspicion of syphilis, and in the majority of instances the suspicion is justified in the finding of evidence of syphilis. We have lesions of the aortic valve from rheumatic infections; but in this instance they are almost without exception accompanied by lesions in other valves.

I do not yet feel justified in making a dogmatic statement concerning the relationship of focal infection about the teeth to disease of the aortic valve; but during the last two years I have had a few cases with aortic-valve lesion in whom no evidence of syphilis could be found, but in whom alveolar abscesses or marked pyorrhea was found. In two of these cases provocative doses of mercury failed to bring out the Wassermann reaction, and the cerebrospinal fluid removed for testing was normal.

Because of the frequency of syphilis, we are learning the early and practically routine use of the Wassermann reaction.

The fluoroscope and radiograms are of especial value in giving evidence of aortitis and aneurysm; and the former lesion will give evidence through the dilatation of the aorta, which occurs early in the disease.

In connection with aneurysm I should like to emphasize the importance of thorough, painstaking, systematic examination of the patient in every case with thoracic pain. At a meeting of the Minnesota Academy of Medicine, about a year ago, I spoke in discussion of a syndrome which I might characterize as almost direct evidence of an aneurysm. It struck me at the time in a rather amusing way, and it might be amusing if it were not so serious. It was brought to my attention by the experience I had of seeing two patients within a week with the same condition. Two others have been seen since, making four in all; but I am glad to say that I have seen no more. These patients complained of pain in the left side of the chest. A diagnosis had been made in each instance of persistent, intractable intercostal neuralgia; and, without sufficiently thorough examination and painstaking study, an attempt had been made to cure the intercostal neuralgia by excision of the nerves involved. I have come to the description of this syndrome,—a male in middle life with a scar on the inner side of the left scapula and with a history of intercostal neuralgia is a case of thoracic aneurysm.

Extreme care should be exercised before surgery is attempted in such instances, and there is protection against such incorrect diagnosis as this.

DR. MUSSEY (closing): In reference to the dizziness mentioned by Dr. White: We noticed this in a number of cases, and that it came on without special exertion. In many cases of aortitis the physical findings



and symptoms led us to have the Wassermann taken. This was frequently positive with a definitely negative history.

In the group of cases such as described by Dr. Tuohy there were 4.27 per cent syphilitic cases that were recognized as having definite heart lesions, yet there were a great many, particularly the early cases, with a dis-

turbed feeling in the chest, which we were not willing to classify. Concerning the incidence of tabes, one of this cardiac group had well-developed tabes and complained of pains in the leg only. He had a staggering gait and the retinal signs, and was dizzy. Others had the Argyll-Robertson pupil, occasionally with a lack of the normal knee and Achilles reflexes.

## TREATMENT OF DIABETES MELLITUS\*

BY W. F. WILSON, M. D.

LAKE CITY, MINNESOTA

It is not intended in this paper to enter at all into a discussion of the complex and varied etiology and pathology of this many-sided disorder. Von Noorden has analyzed the theory of the disease better than any authority I know of; and Dr. A. J. Hodgson, of Waukesha, Wis., has had the greatest experience in the treatment of this affection of any one I know of in this country.

In 1911 Dr. Hodgson read a paper before the American Medical Association at Los Angeles in which he stated he had then treated over 1,100 cases of diabetes; and next month he is to present a paper before the Association at San Francisco, at which time he will doubtless report half as many more cases treated. Dr. Hodgson is at the head of a sanitarium for the treatment of diabetes and Bright's disease, and he has been very successful in his results.

I wish to report, rather briefly, one case that I treated, just as strictly as possible, along the lines laid down by this authority.

On February 22d last there came to my office a mother and daughter, the latter, the patient, aged 19, a bright girl and appearing in good health. The mother said, "I have brought this girl to you because she wants to drink all the time." They had brought a specimen of the urine, and I estimated the quantity in twenty-four hours at three quarts. The sp. gr. of the sample brought was 1.040; acid; and two drops precipitated Haines' test-solution.

There was no history of any errors or indiscretions in diet with this patient, nor had she been taking a preponderance of carbohydrate food.

These people knew something about diabetes, as there have been several deaths in our vicinity from that disease within the past few years, some patients dying within a few days from the time sugar was first discovered in the urine, one of these being a cousin of this patient. We doctors

in Lake City have come to regard glycosuria as a serious matter; and I at once put it up to them that this girl should go on strict treatment immediately. We could not begin all the details of treatment at once, as we had to send away for the special flour, and for a special kind of mineral water. However, I made out a diet list, excluding all sugars and most of the starches; and we were able to obtain an alkaline mineral water in town, also saccharin tablets and trypsogen tablets. Within about a week we had the full treatment instituted as described by Dr. Hodgson, as follows:

1. *Diet*.—We had a copy of his diet slip, giving under different headings, such as "soups," "fish, fowl, and meats," "vegetables," "fruits," "drinks," etc.—not only the articles allowed, but also the things prohibited, under each heading; and suggestions as to the quantity. Dr. Hodgson does not favor weighing the food, but merely advises the patient to get up from the table somewhat hungry. He also emphasizes the importance of eating slowly, and chewing the food well. He makes it a rule for the patient to keep a diary, recording the kind and amount taken at each meal, which is submitted to the doctor for his information, and this also acts as a check on the patient.

I started this course with my patient, but she proved so reasonable, tractable, and dependable, that I did not continue it more than a few days.

His dietary excludes all the sugars and practically all the starches, also anything that might cause acidosis, for example, vinegar. Saccharin in limited quantities daily is used as a sweetening agent; and his specially prepared flour is made according to the following formula:

Unadulterated soy-bean flour.....	350
Unground poppy seed .....	30
Eggs .....	250
Pure baking powder .....	15
Water .....	340

This flour is said not to contain over 4 per cent

\*Read before the Goodhue County Medical Society, May, 1915.

carbohydrate, and can be used in making a kind of biscuit or crackers, gems, etc., and is also supplied in the form of "grits" to be used as a breakfast-food.

Dr. Hodgson condemns strongly all so-called gluten flours, stating that most of those advertised contain from 40 to 70 per cent carbohydrate.

2. *Drinking-water*.—Dr. Hodgson uses at his sanitarium the so-called "Still Rock" mineral water from the "White Rock" spring at Waukesha. This is a mildly alkaline mineral water, and he advises the patient to drink six to ten glasses a day of this water, thus washing the blood, overcoming the acidity of the urine, and guarding against acidosis, which is the usual fatal complication. I had my patient drink three pints daily of this mineral water, which, with the other fluids taken, kept the urine up to about five pints daily, with less and less acidity, until it became neutral or slightly alkaline.

3. *Laxatives*.—It was necessary to give this patient a laxative. Dr. Hodgson advises a formula of "olive oil, castor oil, and glycerine, āā. 160; gum arabic, 18; flavoring oil, .5," to be given in daily doses sufficient to move the bowels regularly each day; but it required so much of this preparation to act on my patient that I added aromatic cascara, 5i, at bed time, and then had to use ʒss of the oil emulsion, t. i. d., before meals.

4. *Exercise*.—My patient was admonished with Dr. Hodgson's aphorism, "The diabetic should be kept mentally indolent, and physically active."

5. *Specific Medication*.—The only medicine given my patient outside the laxatives mentioned and the mineral water, was trypsinogen tablets. This is not a part of the Dr. Hodgson treatment; in fact, he condemns strongly all drugs in this disease, except his oil emulsion and the medications in his Spa water. He is especially severe on codeine and arsenauro, believing they do more harm than good; but he mentions the use of raw pancreases, or pancreatic extract, as having a physiological basis when the diabetes is due to disturbance of pancreatic function, but thinks only the smallest fraction of the internal secretion of the pancreas can be supplied in that way, at least from pancreatic extract, and the feeding of several raw pancreases a day he regards as usually impracticable, so he does not use any preparation of the pancreas in his routine system.

However, acting on the theory that this case of diabetes might be caused by deficient or perverted internal secretion of the pancreas, and that trypsinogen tablets do contain "the internal secretion of the islands of Langerhans, as well as trypsin and amylopsin" I started my patient on six trypsinogen tablets daily—two tablets p. c. This dosage was later on somewhat increased, and again diminished, as I will describe, with results obtained, in the chronological report.

It goes without saying that careful observation must be kept of the urine, with frequent tests not only for sugar, but also for albumin and acidity; and tests should be made for acetone and diacetic acid; but as I did not have the reagents at hand for the complete testing for acetone bodies I contented myself with keeping frequent track of the quantity, its sp. gr., the total solids, reaction, tests for albumin and sugar, and the ferric chloride test for diacetic acids, and carefully watching the general condition of the patient, the accumulation of acetone bodies being accompanied by albuminuria, and leading to coma. No signs of acidosis were at any time detected, due, I believe, to promptly flushing out the system with an alkaline mineral water, in the very beginning.

One specimen I had at the beginning of treatment, out of the mixed twenty-four-hour urine, required only one drop to precipitate Haines' solution. Three days later it required three drops, and after another three days of treatment, it took seven drops. In about three weeks from the time this patient came to my office, or about two weeks from the time of getting all the treatment instituted, the urine showed no sugar. At that time the quantity in twenty-four hours was about 80 ounces, nearly as much as before treatment, due to the liberal supply of mineral water drunk, but the sp. gr., instead of being 1.040 was 1.010, giving 700 gr. total solids excreted in the twenty-four hours, with no sugar, no albumin, no diacetic acid, and a very faint acid reaction.

Dr. Hodgson says that under this strict anti-diabetic diet the sugar will usually disappear from the urine in about two weeks. Then it is very important to establish the patient's toleration for starch, because of the danger of acidosis in continuing this diet too long, and the strain put upon the kidneys in taking care of the waste from such a preponderance of proteid foods. In fact, a patient may develop an acetone intoxication while on this starch-free diet before the glycosuria clears up, in which case carbohydrates

must be given even though increasing the quantity of sugar in the urine. Fortunately, in my case no such complication appeared; in fact, my patient felt well all the time, maintained her weight around 145 lbs., and often said that, except for the inconvenience of having to respond so often to the demands of a full bladder, she would not know there was anything the matter. She took the special diet with good grace, but was not sorry when we began adding starchy foods, which we did at first at one meal a day, breakfast only, and only one kind of starch. For two days she had wheat starch, a medium-sized slice of toasted bread for breakfast, with no sugar appearing. Then we tried potato starch two mornings, and there was no sugar. Then oat-meal two mornings, and still there was no sugar. Then we began giving two kinds of starchy food daily, one in the morning, and one at noon, varying the order of the same three kinds, and allowing but a moderate quantity at one time. This was continued for six days, with no sugar appearing in the urine. Then we began giving some kind of starchy food with each of the three daily meals, and allowing her to take some other kinds of farinaceous foods, such as tapioca, rice, macaroni, rye bread, and lastly corn-meal, and never but a moderate quantity with any meal, and always varying the kind of starchy food, so that she took any one kind but once a day, with no appearance of glycosuria.

We have continued this system up to the present time, six months from the beginning of trying out the starches; and we see no reason for making any change in the diet now, as she seems to be getting carbohydrate food enough to satisfy the demands of the body, feels well, and the urine is normal; and we are very anxious not to have a recurrence of the glycosuria, as we believe a vicious circle of metabolism would then be re-established, and we would have practically all our work to do over.

If sugar had appeared in the urine while experimenting with these starches, we would have had, according to Dr. Hodgson's system, to go back again to the strict carbohydrate-free diet for a few days, until the sugar cleared up, and then to begin starchy foods in increasing quanti-

ties up to the point of toleration, but not enough to produce glycosuria.

I have stated that in the very beginning I had this patient take six trypsogen tablets daily,—two tablets after each meal. After two or three days I began adding one tablet daily until she was taking ten tablets each day. This was continued for about one month, at which time, the urine having been free from sugar for about four weeks, and the patient taking starchy food at each of the three daily meals, I began reducing the dose of trypsogen, to see what effect, if any, this preparation had in maintaining the absence of glycosuria. We dropped off one tablet daily until none were taken, with no change in the urine, or in the condition of the patient. So it would seem to be doubtful if trypsogen did this patient any good.

This preparation might benefit a case of pancreatic diabetes, but there was no evidence at any time that this patient had involvement of the pancreas.

Since omitting these tablets, the patient has not been taking any medicine, except laxatives and the alkaline water. We soon omitted the oil, and depended on cascara to move the bowels.

What of the future for this patient? I should suppose she would have to continue about the same habits as at present for the rest of her life. A "cure" is hardly considered possible in this disease, in the sense that the once subject can indulge in all kinds of foods and miscellaneous drinking-waters without having the disorder return. Someone has said, "A person who has diabetes may die with the disease, but not of the disease."

If we knew what brought on the trouble in this case, by having the patient avoid the cause, she might escape a recurrence; and this leads me to enquire, What is there in locality as an etiological factor in diabetes? Three of the cases I have had knowledge of lived in the same school district in the country,—all were fatal cases,—and a fourth, this patient of mine, visited for awhile in that district just before the onset of the disease. Does the drinking-water in that district set up this perverted metabolism in susceptible cases, or is there an etiological microbe?



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## SHALL MINNESOTA COME INTO THE GROUP OF REGISTRATION STATES FOR BIRTHS?

The State Board of Health is about to take up the furnishing of transcripts of certificates of births registered in Minnesota for the year 1915 to the Bureau of the Census at Washington. If the returns of births come up to the standard required by the Census Bureau, Minnesota will be placed in the registration group of states for births.

A similar test was made in Minnesota in 1910, and the returns of births were not sufficient to allow Minnesota to enter the registration group. If Minnesota fails to get into this group on the returns of 1915, it will be because the physicians, especially, and the midwives have neglected to do their duty, for Minnesota has a good law relating to the reporting of births.

Birth-reports are important official documents. The inconvenience caused by failure to report may be illustrated by the following: On November 6, 1896, a girl child was born in one of the cities in Minnesota to parents of Swiss nationality. Her birth-certificate was not filed. On July 11, 1905, an application was made to the Minnesota State Board of Health for a record

of the birth-certificate. A correspondence was begun to straighten this matter out. The correspondence extended from July 11 to November 23, in order to get this birth-certificate in such form as to allow of its use in Switzerland in settling up the grand-father's estate.

It is to be hoped that the physicians throughout Minnesota will have enough pride in their State to see that their returns of births are all made to the local registrar as required by law.

The Director of the Bureau of the Census, on submitting a proposal to the State Board of Health to examine the transcripts of births for Minnesota for 1915, states, in part, as follows:

*The permanent birth-registration area will be organized for the year 1916, and will include only such states out of the number which may be included in the temporary birth-registration area as shall give evidence to the Bureau of Census that they are uniformly and thoroughly enforcing the state law providing for the registration of all births which occur in the state within a definite interval of time as provided by said law, and with prosecution and enforcement of the penalty of the law for violation thereof, either with respect to the failure to file births entirely or to file them within the time fixed by law.*

I desire to advise you that this requirement will be rigidly enforced and to urge that, if you are not already doing so, you should make an effort to enforce the provisions of your law for the registration of births by actual infliction of the penalties contained therein, with records of fines, so that the Bureau of the Census may be fully informed as to the effectiveness of administration of the law.

The State Board of Health is very anxious, indeed, that Minnesota shall come into this registration area for births. Physicians throughout the state, therefore, need not be surprised if they are brought into court from time to time if they fail to report births as required by law.

## A "REMARKABLE" DEATH-RATE

The medical men of North Dakota are familiar with the somewhat lively debates that have taken place, in the annual meetings of the State Association, over the registration of deaths in that state. Such debates have "gotten nowhere," except to reveal the fact that North Dakota physicians, like those of Minnesota and other states, do not register *all* deaths. The result, of course, is a "remarkable" death-rate.

The last *Bulletin of the North Dakota State Board of Health* says that, based upon certificates received at the Board's office, the death-rate of North Dakota is 5.5 per cent, which, the *Bulletin* adds, is absurd. It also says the death-rate in Fargo is 11.9 per cent, in Grand Forks 9.8 per

cent, and in Bismarck 7 per cent. These percentages are considered correct; and of course they show a very low rate in each city.

#### A CLOSED SPIGOT—AN OPEN BUNG

"Health Week" has just been duly and enthusiastically celebrated in Minneapolis, and, it is to be hoped, with results inestimable. But why close the spigot and leave the bung open? In Minneapolis, as elsewhere, there are open plague-spots known to all men, which cannot be closed because men of influence want them open for profit.

Present weather conditions call special attention to one such spot in this city to which public attention has often been directed. Cedar Lake is a small sheet of water (less than a mile wide) on the banks of which are several hundred or more residences, with not a few cow-barns on the lake's small watershed. As there are no sewers near these residences, privy-vaults and cess-pools find their outlets into the lake. At the present time, the lake is frozen over, and the ice looks like the streets, so great has been the accumulation of dirt and filth during the past month.

The Cedar Lake Ice Company will soon begin its harvest of ice, which will carry this accumulation of filth from the street, the privy-vaults, the cess-pools, and the cow-yards direct to the tables of the citizens of Minneapolis; and such citizens as know that a possible path of death is thus laid from privy-vault to home will cry out in vain.

How long will such spigot-and-bung methods of health-preservation be tolerated?

### BOOK NOTICES

**SIMPLIFIED INFANT-FEEDING**, with seventy-five illustrative cases. By Roger H. Dennett, B. S., M. D., Adjunct Professor of Diseases of Children, New York Post-Graduate Medical School, etc. Philadelphia and London: J. B. Lippincott Company, 1915.

This is a rather comprehensive work on infant-feeding. "Theories" and "systems" have been discarded; and cases are cited with the history, diagnosis, and treatment. The book lacks much from the scientific view, but this is balanced by a directness of application and concreteness.

The chapters on food elements and caloric values, with explicit directions as to preparation of food, etc., are excellent. The classification of diseases is a workable one. The author has not tied onto a particular method, but, rather, has made the symptoms the basis

of classification. On the whole, it represents the Continental view rather than the American.

In treatment, the author has bravely broken away from top-milk mixtures, and uses simple ones. He also has made use of Keller's Malt Soup and Finkelstein's Protein Milk.

The discussion of breast-feeding leaves much to be desired. Too much that has not yet been proved is stated as fact. The list of contra-indications to breast-feeding is rather large; and not enough stress is placed on the desirability and feasibility of breast-feeding. It probably represents the present-day ideas very well, but fails to call attention to the great amount of work to be done in the field of breast-feeding, which is the real problem of infant-feeding.

The discussion of feeding in the second year is admirable. The author plainly points out the error of a long-continued milk diet to the exclusion of other food, especially the one containing vegetables.

On the whole, the work is an excellent one. The general practitioner will welcome it, for it points out definite, concrete lines of procedure for his feeding cases, and does not leave him in a maze of theories.

—RODDA.

**PRACTICAL MEDICINE SERIES**, 1915, Vol. III. The Year Book Publishing Co., Chicago. Price of this volume, \$1.50.

This book, edited by Drs. Casey Wood, Albert H. Andrews, and W. L. Ballenger, covers the eye, ear, and nose and throat, respectively.

It is difficult, among the many good things, to select those of the most interest. Among the advances in ocular therapeutics may be mentioned the diagnostic and therapeutic uses of tuberculin. Quoting from an article by A. E. Davis, the conclusions are reached that (1) the tuberculin-reaction test plays as important a part in arriving at a correct diagnosis in tubercular diseases as does the Wassermann reaction in syphilitic diseases; that (2) as a therapeutic agent tuberculin properly used is the most valuable remedy we possess in the treatment of ocular tuberculosis. Used consistently and persistently for a long period of time, the results accomplished are little short of wonderful. Stress is laid upon the importance of individualizing the patient and treating him according to his reaction, remembering that we are dealing with a powerful agent and one that may do harm if not properly administered.

Considerable emphasis is placed upon the use of sub-conjunctival injections of cyanide of mercury in acute purulent processes of the anterior segment of the globe. The claim is made that no other known treatment will so rapidly bring about resolution. Good results have been obtained in acute indolent ulcers, in suppurative keratitis, recent corneal opacities, and episcleritis.

Some very profitable discussions of tendon operations are given, quoting at length from Drs. Roderick O'Connor and Frank C. Todd, which aid in standardizing muscle operations and help to make them more exact and more under the continual control of the operator.

The treatment of the phorias is considered by Dr. G. C. Savage, and the hints given are very profitable.

Under glaucoma, the Elliott operation is considered, and some suggestions are made as to refinements in making the flap and in the technic of the operation. Dr. G. B. Jobson has designed a keratome which, he

says, greatly facilitates making the flap in the Elliott operation.

Considerable space is given to the social and economic aspects of deafness and to its prevention. Also to middle-ear catarrh, both acute and chronic.

Under treatment of diseases of the throat, stress is placed upon the use of diathermy in inoperable growths of the nose and throat. A high-frequency current of great power is used. A large electrode wrapped in wet cloths is applied to the patient's chest. The other electrode, which is a small one, is buried in the growth. As the current is turned on, this electrode becomes hot, the tissues soon become blanched, and, after a few punctures have been made, the diseased areas may be removed by forceps or curette. Following this, the deeper parts of the growth may be attacked. There is very little pain or inflammation following, and the patient is able to swallow in about forty-eight hours after the operation. The advantages over the knife are the rapidity of the operation, the absence of hemorrhage, and the sealing up of the vessels and lymphatics. Recurrence seems to be less frequent than after a cutting operation, and this treatment is recommended as being ideal for nevi.

—LEAVITT.

**DISEASES OF THE NOSE AND THROAT.** By Algernon Coolidge, M. D., Professor of Laryngology in the Harvard Medical School. 12 mo. of 360 pages; illustrated. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$1.50 net.

The object of this book is to guide the student and practitioner of medicine in his clinical work, by giving him a ready reference to the important details of examination, diagnosis, and treatment of the upper respiratory tract.

It is a well-written volume with many original illustrations, going well into the method of examination, the various diseases of the upper respiratory tract with treatment, and, in fact, is an ideal work for the general practitioner.

—WOOD.

## NEWS ITEMS

The new hospital at Osakis is now open to the public.

Dr. C. A. Scherer, of Minneapolis, has moved to Fargo, N. D.

Dr. C. J. Goodheart, formerly of Finley, N. D., has located in Hope, N. D.

Dr. J. W. Livingstone, of Courtenay, N. D., has moved to Hudson, Wis.

Dr. G. W. Callestrom, of Northwood, N. D., has moved to Aneta, N. D.

Dr. A. M. Brunelle, of Cloquet, died very suddenly November 25 at the age of 59.

The new \$20,000 hospital at the Red Lake Indian Reservation was opened November 30.

Dr. J. W. Andrist, of Owatonna, has returned from a trip of several weeks visiting Eastern clinics.

Dr. F. W. Spicer, of Duluth, was married on December 11 to Miss Madeline Miller, also of Duluth.

Dr. J. P. Freeman, of Glenville, is doing post-graduate work at the Polyclinic Hospital, New York City.

Dr. E. T. F. Richards, of St. Paul, is in Europe to act as field surgeon in the war zone for three months.

Dr. George Sutton, an interne at the Minneapolis City Hospital, has joined the American Red Cross in Paris.

Dr. Henry Lysne, of Minneapolis, was married November 24 to Miss Marceline Boehme, also of Minneapolis.

Drs. B. A. Kamp and W. L. Palmer, of Albert Lea, have dissolved partnership, and each will hereafter practice by himself.

Dr. Dewey Sutton, formerly of Wolsey, S. D., has located in Redfield, S. D., and formed a partnership with Dr. F. M. Crain.

Dr. W. F. Lewis, one of the first settlers of Mankato, died November 18 at Palo Alto, Calif., his present home, at the age of 86.

Dr. Bert Menser, who has practiced in Bridgewater, S. D., for the past twenty years, has sold his practice to Dr. J. G. Kennedy, of Plankinton, S. D.

The street railway company of Minneapolis has announced the abandonment of its plan to erect a mammoth building for physicians, surgeons, and dentists.

The county commissioners of Otter Tail County have appropriated \$4,000, and the State has given a like amount to be spent in improving the County Sanatorium.

The Alumni Association of St. Joseph's Hospital, St. Paul, has filed articles of incorporation with the Secretary of State. The object of the organization is to promote the nursing profession.

St. Mary's Hospital, of Rochester, is being equipped with a complete electric light and power plant, which will protect it in an emergency like that of the recent burning of the municipal power plant.

Dr. Daniel Tufte, of Pelican Rapids, died somewhere in Germany November 10. The Doctor was studying in Germany when the war broke out, and at that time joined the German medical staff.



Dr. C. C. Burlingame, Assistant Superintendent of the State Hospital at Fergus Falls, has resigned that he may accept a position as medical director of the Cheney Silk Mills Company at Manchester, Mass.

Dr. A. J. Kirghis, of St. Cloud, who some time ago was called to France by the death of his father, writes to his wife that he has been drafted into service and assigned to medical work, though a naturalized American citizen.

The report of the sanitary survey of North Dakota, made in September, October, and November, by Dr. Carroll Fox, of the U. S. Public Health Service, will be published in the January issue of the *Bulletin* of the State Board of Health.

The four-story office building at Nicollet and Ninth Street, Minneapolis, known as the Reid Corner, has been enlarged to eight stories and the name has been changed to the Physicians' and Surgeons' Building. It is occupied only by physicians and dentists.

The Stutsman County Society of North Dakota held its annual meeting last month at Jamestown. The following were elected officers for 1916: President, Dr. H. D. Earl, Jamestown; vice-president, Dr. T. P. Martin, Streeter; secretary-treasurer, Dr. G. Golseth, Jamestown.

Minneapolis has been expecting to report at the end of the year the lowest death-rate from typhoid recorded by cities of its class; but such a record will not be made because of the outbreak of an epidemic on a Government dredge boat on the river near the city limits. It was due to drinking unfiltered river water.

The Secretary of the Minnesota State Medical Association, Dr. Thomas McDavitt, is opening up a loose-leaf system for the roster of the Association, and he hopes to obtain a permanent record of all the members of the Association. He can do so only with the hearty co-operation of the secretaries of local societies. Blanks have been sent to all of them.

The Mitchell District Society of South Dakota held its annual meeting last month at Mitchell. Six new members were admitted, and the following officers were elected for the current year: President, Dr. A. H. Hoyne, Salem; vice-president, Dr. T. H. Stewart, Kimball; secretary-treasurer, Dr. F. D. Gillis, Mitchell; delegates, Dr. C. V. Templeton, Woonsocket, and Dr. Guy Ramsey, Salem.

Dr. George E. Malsbary, editor of the *Southern California Practitioner*, has been charged by the U. S. Postal Department with sending "obscene" matter through the mails, and an indictment has been brought against him. The offense was committed in a scientific article on the sex question. "The American Medical Editors' Association" has passed resolutions to extend to Dr. Malsbary any assistance and support in their power.

The Southern Minnesota Medical Association held its annual meeting at Mankato on November 30 and December 1. Its program contains fourteen papers with discussions. Dr. Sidney Kuh, of Rush Medical College, and Dr. C. E. Ruth, of Des Moines, Iowa, were the guests of the Association from outside the state, who read papers. The surgical and medical papers were about evenly divided, and they made an admirable program.

The Black Hills Society held its annual meeting the last of November at Lead. The only topic for discussion before the Society was fractures. The Homestake Hospital staff occupied the entire time of the meeting with clinics and the exhibition of cases, thus making an exceedingly interesting and valuable meeting. Officers were elected as follows: President, Dr. Frank Clough, Lead; vice-president, Dr. F. W. Minty, Rapid City; secretary-treasurer, Dr. F. A. Richards, Whitewood.

The Evans Memorial for Clinical Research, of Boston, is desirous of coming into communication with as many physicians as possible who have used bacterial vaccines in the treatment of typhoid fever, for the purpose of collecting statistics concerning the efficiency or non-efficiency of the method as a therapeutic measure. If any who have done this, even with only one or a few cases, will send their names and addresses, blank forms will be sent to them upon which uniform reports may be made. Due credit will be given to each in any reports that may be published. Address all communications to Dr. W. H. Waters, 80 East Concord St., Boston, Mass.

The "Soo" Surgical Association met in Minneapolis on December 7 and 8, with a very large attendance. The program embraced sixteen papers and one operative clinic. The men in attendance were from Minnesota, North Dakota, Wisconsin, and Michigan. This organization has become one of the best railway surgical societies in the country, and it is doing much to solve

the problems connected with railway surgery and sanitation. Officers for 1916 were elected as follows: President, Dr. Theodor Bratrud, Warren, Minn.; vice-president, Dr. John M. Dodson, Dean of Rush Medical School, Chicago; secretary-treasurer, Dr. J. H. Rishmiller, Minneapolis; censors, Dr. A. J. McCannel, Minot, N. D., and Dr. D. D. Murray, Duluth. Nearly one hundred sat down to a sumptuous banquet at the Radisson. The next annual meeting will be held in Minneapolis.

#### PHYSICIAN'S OFFICE FOR RENT

A good location for a physician and dentist. Call or address E. A. Tupper, Druggist, Chicago Ave. and Tenth St., Minneapolis, Minn.

#### ASSOCIATE WANTED

A physician in a live western North Dakota town wishes a young surgeon and general physician as an associate. Address 292, care of this office.

#### LOCUM TENENS WANTED

I want a physician to take my practice for a year with prospect of permanent location. Am leaving for postgraduate work. Address 280, care of this office.

#### POSITION OFFERED

Wanted, an eye, ear, nose, and throat specialist to take my office and buy my furniture in a large city of Montana. Rent cheap. Address 284, care of this office.

#### OFFICE POSITION WANTED

A young lady, having had two years of hospital training, desires position as office nurse, or position not requiring a graduate nurse. Address 285, care of this office.

#### MEDICAL LIBRARY FOR SALE

My medical library containing many good up-to-date works in sheep and half-morocco binding. Complete description given. Address B. Menser, M. D., Bridge-water, S. D.

#### LOCATION WANTED

Good location, mine or camp contract, in Wisconsin, Minnesota, North Dakota, or Montana wanted by young physician. Would like to associate with surgeon also. Address 283, care of this office.

#### ELECTRICAL EQUIPMENT FOR SALE

At a bargain, one 220 A. C. Scheidel-Western 10 K-W x-ray transformer. One 220 D. C. 12 K-W Victor transformer. Both machines are in excellent condition. Address Ziola Jackson X-Ray Coil Co., 321 Commercial Bldg., St. Paul.

#### AUTOMOBILE BARGAIN

Chevrolet Roadster, 1915 model, used only 4 months, electrically equipped, 8-day clock, trunk, extra tires and rim. Cost \$925 as it stands; will sell for \$575. Car guaranteed in perfect condition. Phone McDonald Pharmacy, Midway 2158, St. Paul.

#### OFFICE HOURS FOR RENT

Desirable office hours in large suite in Donaldson Building, Minneapolis. Address 293, care of this office.

#### PARTNER WANTED

I desire an assistant, a partner, or someone to purchase my practice in a good town of 1,800 in Minnesota. Must be a French Catholic. Address 294, care of this office.

#### PHYSICIAN FOR WAR SERVICE WANTED

An ophthalmologist leaving for Europe (probably London) about January 1, to do clinical work, or assist in relief service as opportunity affords, would be glad to correspond with any physician having a similar object. Address 281, care of this office.

#### LOCUM TENENS WANTED

Regular physician with experience wanted to take my practice for three and one-half to four months, commencing January 26, 1916. Located in a South Dakota county-seat town. Practice averages over \$6,000 a year. References as to ability required. Address 282, care of this office.

#### PRACTICE FOR SALE

A \$3,500 to \$4,000 practice in Southern Minnesota town on railroad; thickly settled farming community of mixed population, mostly German. Good schools, good churches, good people. Work from the start. No competition. Large territory. Price for office fixtures and fresh stock of drugs, \$500. Residence and office optional. Best reasons for selling. Address 288, care of this office.

#### PRACTICE FOR SALE

One of the best country practices in North Dakota for sale cheap. Located in a town of 300 in the Red River Valley, among well-to-do farmers, with no competition nearer than 14, 17, 22, and 25 miles. Population, mostly Norwegian, therefore a Norwegian physician preferred. I have lived here 17 years and now wish to retire. Will sell instruments and office fixtures with good-will for a very reasonable price. I have made good, and now someone else can do the same. Write for full particulars. Address 286, care of this office.

#### PRACTICE FOR SALE

My modern, 9-room residence with 3-room offices adjoining and practice established over 7 years which has consisted almost entirely of office work (no specialty) and which has paid me over \$11,000 cash in past 3 years. This figure can be materially increased by man who will make country trips, answer night calls and accept obstetrical cases. \$1,500 cash will swing deal, balance on easy terms; I am going East to take up special work and desire to leave by January 1st. This is a snap for someone. Address 279, care of this office.

#### DOCTOR

Doctor: If you want practical post-graduate work during the fine season in the delightful city, write for particulars. Twenty-ninth annual session opens September 27, 1915, and closes June 3, 1916. New Orleans Polyclinic, P. O. Drawer 770, Graduate School of Medicine, Tulane University of Louisiana.

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# The Battle Creek Method of Treating Cases of Drug Addiction

Alcohol, Opium, Cocaine, Tobacco and Other Drug Habits

The Battle Creek Sanitarium is not an inebriate asylum. Cases requiring physical restraint or likely to disturb other patients are not received. For a large class of intelligent persons who have through suffering become entangled in the toils of a drug habit and who are ready to co-operate with a rational effort to deliver them from the drug and from its effects the Battle Creek Sanitarium Method offers a rational, safe and remarkably comfortable means of relief and without publicity.

This is not a drug method. Drug methods often leave the patient's nervous system shattered and his condition so wretched that he is very liable soon to drift back into the old habit.

There are no tricks of hypnotism or "suggestion" in the Battle Creek Method. The rational and physiologic means employed not only remove the craving for the drug but deliver the patient from the pain or neurasthenic miseries to relieve which the drug was first used, and if faithfully employed finally reinstate the patient by removing the morbid effects resulting from the use of the drug.

A fuller account of the Battle Creek Sanitarium Method of treating drug addiction in its various forms will be sent on receipt of the attached coupon.

**The Battle Creek Sanitarium, Battle Creek, Mich.**

Box 350

**The  
SANITARIUM,  
Battle Creek,  
Michigan.**

Please send to the undersigned full information concerning the Battle Creek Method of treating cases of drug addiction.

Dr.....

Street .....

City .....

State .....

## PUBLISHER'S DEPARTMENT

### VENARSEN

Venarsen is a new arsenical compound for intravenous medication which its manufacturers claim is giving better results, gauged by the Wassermann test, than any other arsenical compound. It is comparatively non-toxic, and its administration is very simple.

Its use in syphilis has been exceedingly gratifying; and the results obtained are easily determined in a scientific manner. The amount of metallic arsenic and of metallic mercury, in chemical combination, in each dose, is accurately stated in the formula; and its use as a substitute for salvarsan is no experiment.

It is put up by the Intravenous Products Company, of Denver, Colo., and is an ethical preparation, as are the other solutions of the company.

### NATIONAL PATHOLOGICAL LABORATORY

The very rapid and very extensive growth of the centralized pathological laboratory, can be accounted for in only one way—it meets a need.

The above laboratory is doing pathological work for physicians in almost every state in the Union, and its very extensive work is due to the fact that its customers are well pleased; and when a man becomes familiar with the advantages of consulting the professional laboratory, he becomes its constant patron.

We believe the National Pathological Laboratory (Chicago and New York), can be of great service to our readers.

### CALUMET BAKING POWDER

Calumet baking powder has been pronounced a wholesome product by the highest chemical and health authorities in America, the Remsen Board.

It sells for considerably less than so-called cream-of-tartar powders, and possesses some decided advantages over such powders, especially the following:

1. The dough does not readily fall, and may stand a considerable time after rising before being baked. Cake and biscuit dough is not affected if it stands a half hour after being first ready for the oven.

2. The dough may stand 24 hours, if kept in a refrigerator, thus making it easy to have a large supply on hand for hospital or hotel purposes instantly ready for the oven.

3. It does not deteriorate when kept in the pantry or on the grocer's shelves. It is wholesome, clean, dependable, and cheap.

### FIVE STEPS IN THE DEVELOPMENT OF X-RAY APPARATUS

1. The Rühmkorff Coil, with which Prof. Röntgen performed his original experiments, was used for a number of years as the standard type of x-ray apparatus for want of something better to excite the tube. This was soon discarded, however, owing to the annoyance caused by the hammer vibrator or interrupter.

2. The Static Machine was the next step in the progress of x-ray apparatus and for many years was considered the most available means of exciting the tube. The demand for a more powerful apparatus finally brought about the adoption of

3. The Induction Coil, with mercury or electrolytic

interrupter. With this apparatus bone structure of any part of the body could be easily radiographed, but soft tissue work could not be accomplished owing to the relatively long exposures required of several seconds duration.

4. The Transformer with rotary high-tension rectifier has placed röntgenology upon a more scientific and practical basis, affording much greater penetration, shorter exposures and much greater definition in pictures. This arrangement has been considered ideal from the standpoint of results, and manufacturers in general had come to the conclusion that the very highest plane of development possible in the construction of apparatus had been attained and that there was no room for further improvement.

5. The Hogan Silent X-Ray Transformer, interrupterless, motorless, commutatorless, and noiseless, marks a distinctive era in the construction of x-ray apparatus, as it affords all of the power of the ordinary interrupterless transformer and at the same time greater simplicity of construction and operation. In this apparatus all moving parts have been eliminated with the exception of the spark-gap adjustments. This makes it possible to place upon the apparatus a five-year guarantee against breakdown, as there is practically nothing to wear out. Full particulars regarding this apparatus may be had by addressing the manufacturers, the McIntosh Battery & Optical Co., 322 W. Washington street, Chicago, Ill.

### EASYON TIRE CHAINS

Tire chains of a new design, called "Easyon Tire Chains," which show many attractive features, are being manufactured by the Leather Tire Goods Company, of Niagara Falls, N. Y.



Easyon Chains are individual chains which attach to the spokes with leather-covered fasteners, having a snap on each end, which snaps into the ends of the cross chains. The cross chains have a long smooth link on the middle that does not injure the tire, but the ends of which stick out so

as to take a deep hold in mud or snow and yet cause no bumping on pavements. Easyon Chains will appeal strongly to the average automobile owner, who dislikes to use chains and will much prefer to have something like this which he can put on after he finds he cannot run without them, rather than ordinary chains, which have to be put on in the garage or on good roads because they cannot be applied after one gets stuck in the road.

The users of Easyon Chains, feeling they are safe to run with bare tires, will not use chains nearly as much as with the older style, consequently the chains will last much longer and the tires will also be saved. The automobile drivers who have non-skid tires sometimes find that the tires will not give a sufficient hold on ice or in deep mud and snow. To such people the chains are just the thing to supply the extra grip that is needed on such road surface.

These chains are packed with a set of 8 in a bag, four for each rear wheel, sufficient to give traction on any road surface.

They are made in three sizes and they fit any wheel.











